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Message from President's Desk

ABS International Journal of Management provides a perfect opportunity to immerse oneself in the advancements of the fast-growing field of management research and get published in a journal that has excellent reach and expectations of a significant impact. It is no secret that the landscape of scholarly publishing is quickly changing. Across disciplines, new demands and expectations from both authors and readers have encouraged shifting perspectives among editors and publishers.

Our aim is to provide a platform for discussion and insights related to the rapidly shifting management research landscape. We strive for maintaining and intensifying the high standards of academic excellence through publication of this journal and hope to contribute to the existing body of knowledge on management research. The journal is served by a very competent editorial board along with a network of scholars helping to secure high-quality contributions.

I appreciate and congratulate the Research & Development Cell at Asian Business School, the contributors of research papers and all others involved directly or indirectly in this excellent intellectual exercise and wish that ABS International Journal of Management manifests itself as the best medium for scholarly work in the field of management education and research

Dr. Sandeep Marwah

President

Asian Education Group

Message from Director's Desk

ABS International Journal of Management has accumulated a commendable heritage over 6 years of its existence. The objective of the journal is to publish up-to-date, high-quality and original research papers alongside relevant and insightful reviews. Under the thoughtful guidance of the highly competitive advisory board, the journal has evolved rapidly and meaningfully. The journal aspires to be Today, it attracts a much wider spectrum of contributors across all the management streams and has gained a substantial wide readership by publishing thought provoking papers on recent and contemporary issues. Ieagerly look forward to strengthening the reach of ABS International Journal of Management in the near future with valuable guidance and support from the partners and stakeholders. As we move ahead, I would like to wholeheartedly thank all the members of the Editorial board, for their continued thought leadership and support to the journal. I would also like to congratulate the members o Research & Development Cell, Asian Business School for their exemplary mentorship of the journal. Our aim since the very inception of this journal has been to publish quality research upholding the standards of ethical publication. We have been consistently working towards enhancing the visibility, impact and the overall quality of our journal. Best wishes to the Research & Development Cell at Asian Business School for its unstinted efforts to further strengthen the quality and readership of the journal and thanks to all the authors for their contribution to this issue of ABS International Journal of Management. vibrant, engaging and accessible, and at the same time integrative and challenging.

Dr. Lalitya Vir Srivastava

Director

Asian Business School

TABLE OF CONTENTS

Same Sex Parenting And Children In Indian Households: Consequences, Comparisons, And Recommendations

Manush Ashok Dadlani*

ABSTRACT:
It has been 5 years since the decriminalization of Homosexuality has happened in India and the people from the 61 other sexual orientations have come out as Lesbians, Gays, Bisexuals, Transgenders, Queer, Intersex, Asexual and other forms of sexual orientation. This has provided a free space for gender diverse communities to work and normalize their orientation in normal day to day lives and make them a part of mainstream. Although there has been a history of resistance between the society and the LGBT+'s for their existence in the society. Regardless of discrimination and being seen as a taboo labelling stereotypical social norm still being in existence, People, thankfully have started normalizing it as any other socially accepted form of a relationship which is helpful in making the society more inclusive. The decriminalization debate has now been furthered by asking for legalization and legal recognition of the same by giving rights and recognition to same sex marriage. The litigation has reached to the courtrooms of The Hon'ble Supreme Court of India and shows potential to get the rights, especially after the judgment of Navtej Singh Johar (2018). The next step, the legalization after, would surely be the formation of a family. But what implications, would the parenting by a same sex couple have on the child(ren), the couple, and the society. The article here, tries to investigate the consequences and then recommends steps to achieve a just and equitable society and a better world for living for individuals of all kinds so that the society becomes more structurally functional rather than reflecting a conflict between the mainstream structure of the society and the people who are not or generally not accepted as a part of mainstream structure of the society.

Keywords: ***Homosexuality, Marriage, Parenting, Children, Implications.***

INTRODUCTION

Humans, as normally said, are social animals, unlike other animals, what makes us different is not just society but the power and adaptability to change it and change with it too. Things once considered to be unsafe or dangerous now form an integral part of the machinery, of course in a changed and modified version. For instance, Thunder and Electric energy. This also applies to society as it is described as an organic institution. Hence as the development occurs, the body modifies and the organs and their operations expand, but instead of elimination of the expanded portion, we accept it as our own and include it as a part of the whole. Similarly, with the advancement of society, diversification happens, and differences are created. But it is equally important to keep accepting them and being all inclusive. Homosexuality and Homosexuals are one such community that faced a hard resistance from various theologies, societies and moralities and was denied existence and place in the mainstream of society. This was pushed to such an extent that it became a totem or symbol of Taboo, Sin and Impurity in sexuality and intimacy. Mid 20th century medical science treated it as a disorder or a "sociopathic personality disturb ance." This was debunked by Evelyn Hooker, who, in his research, mention ed that the research describing Homos exuality a disorder was a false correl ation drawn, based on flawed selection of the Homosexual samples who already suffered any mental illness. In India, Homosexuality finds its place way back in the ancient eras and scriptures such as Kamasutra and Artha Shastra. Artha Shastra did not heavily crimin alize the act of homosexuality but issued a mere fine or a fast for a day. However, with the rule of Mughal, especially during Aurangzeb's rule, Fatwa e Alamgiri prescribed heavy penalty and criticized the Homos exuality and subsequently, with the Colonization, the law criminalized Homosexuality under Sec. 377 of the Indian Penal Code, 1860 as an offence of unnatural sex. This provision was challenged first in the Delhi High Court in Naz Foundation v. Govt. Of Delhi (2009) where the court struck down homosexuality as an offence under Sec. 377 IPC. The Supreme Court of India in the case of Suresh Kumar Koushal v. Naz Foundation. (2013) overturned the judgment of Delhi High Court and reinstated Homosexuality as an offence

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under Sec.377 IPC. This was finally challenged in Navtej Singh Johar v. Union of India (2018), and it was held that Homosexuality is not an offence and putting it under Sec. 377 is unconstitutional. Currently the Sup reme court is hearing the plea for legalization of same sex marriage. Thus, it becomes important to talk about the family structure and parenting of the children of those same sex couple. How it is going to be affect the children, The couple and how does the society react to the same? The article envisages answ ering these questions and provides viable solutions for potential problems.

Research Methodology And Scope:

The Researcher has used doctrinal data from the past literature, previous medical research reports available on the govt. Websites and has drafted article descriptively with a recomme ndatory note. The research is limited to Indian context while taking data from other countries hence the proposed model might not be applicable to other societies. The researcher argues that the equal rights if given to homosexuals with regards to parenting subject to certain legislative rules, the structural conflict that is currently going on between the mainstream society and the homosexual rights groups can be resolved and they can be made a part of the structure of the mainstream.

Research Objectives:

The researcher aims to analyze the current situation of LGBTQ+ dema nding legal status to their marriages through a sociol legal lens and anticipates the aftereffects that children raised by homosexual have and how society reacted to them where homosexual parenting has been allowed. This research might help people in the legal and policy-making field produce a viable solution for the current issue regarding rights of the Homosexuals.

Theoretical Background:
Structural Functional Theory:

"According to structural-functional theory, commonly known as functio nalism, society is seen as a system made up of interconnected comp onents that is intended to suit the social and biological requirements of the people who live in it. Herbert Spencer (1820–1 903), a biologist and philos opher from England, recognized parallels between society and the human body in his writings, which eventually gave rise to functionalism. He made the case that in the same way the body's numerous organs cooperate to keep its systems running, so too do society's various components (Spencer 1898). Spencer was referring to the social structures, or ways of thinking and acting that serve to address social needs, such as the government, family, healthcare system, religion, and the economics.

Structural Conflict Theory:

"According to conflict theory, society is a struggle over scarce resources. This viewpoint is a macro-level strategy that is most frequently associated with the works of the German sociologist and political philosopher Karl Marx (1818–1833). According to Marx, society is comprised of two classe s—the bourge oisie (capitalists) and the proletariat or the working class, who compete for socioeconomic, material, and political resources like housing and food, employment, education, and free time. Max Weber agreed with some of Marx's main ideas, but also believed that in addition to economical or materials inequalities, there were inequalities of political power and social structure that caused conflict. Weber noted that distinct groups were affected else grounded on education, race, and gender, and that people's responses to inequality were moderated by class differences and rates of social mobility, as well as by comprehensions about the legality of those in power."

Same Sex Marriage:
Introduction:

Recently, after the decriminalization of homosexuality, homosexuals have asked for equal rights and representation of their relationship by giving them legal recognition. In short, the homosexuals have now reached to the courts for legalization of same-sex marriage and recognizing it as a valid legal relation under Special Marriages Act, 1954. The Question further arises that eve after decriminalization and legal permission to live together, why there has been such an uproar and a constant pressing demand for legalization marriage?

Historical Background:

Unlike the heteronormative marital institution, the homosexual union, as a marital institution came much later. Before that, there was a lack of awareness and sensitivity towards homosexuality. The concept first came into picture when AIDS Bhedbhav Virodhi Andolan released a 70-page report on how homosexuals suffer and are harassed by the hands of police officials. The court case was first filed by Naz foundation in 2001 in the form of a Public Interest Litigation in Delhi High Court to decriminalize the act of homosexuality and remove it from Section. 377 IPC, the petition was first dismissed in 2004 by Delhi HC but subsequent to review petition filed by the petitioner, in 2009, the division bench of Delhi HC struck down

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homosexuality as an offence under 377. Suresh Kumar Kaushal, a Delhi based astrologer, challenged this judgment in the Supreme Court and the Supreme Court overturned the Delhi HC Judgment in 2013 in the case of Suresh Kumar Koushal v. Naz foundation (2013). After 3 years of this judgment, Navtej Singh Johar filed a writ petition in 2016 before the Supreme Court where the 5-judge bench unanimously upheld the decision to decriminalize homosexuality and remove it from IPC Section 377. The question for marital rights came much later when petitions were filed in High courts of different states, demanding legal recognition and homosexual marital rights. The Supreme court decided to club all the petitions and hear it together, in the case of Supriyo@Supriya Chakraborty v. Union of India.

Why so much emphasis on marriage?

Marriage is a social institution of its own kind. Marriage has distinctive traits as a social institution, including its potential to provide socio-legal protection and rights and cultural legitimacy. Hence, Homosexuals see it as an effective remedy to fight for and achieve equity and legitimization. The rights such as inheritance1, adoption, insurance rights are available to a heterosexual married couple who have their marriage legally recognized. Also, after the HIV/AIDS crisis of America, where the connot ations were negatively levied on the Homosexuals and it was classified as a homosexual epidemic because most of the affected were from the same background hence it was not easy for them to get legal help like spousal, medical and estate benefits which were equally available to the Heterosexuals because of the legal recognition their relationship had. Hence, it becomes important that to access publicly available remedies, one needs valid legal recognition. Therefore, there has been a rising demand for legalization of same sex marriage. The Same sex couples argue and believe that this legalization will remedy and solve a huge spectrum of problems as marriage as an institutio n and its recognition become globally accepted. Furthermore, giving legal recognition to a relation under the umbrella of marriage, a universally accepted social institution.

Arguments put forth by the State:

The Union in its arguments, refused to recognize marriage of homosexuals. It also put forth that the spirit of marriage lies in its tradition where it is described as a union between a biological male and biological female and validation of homosexual marriages would strike at the root of the traditional values of marriage. Centre in its arguments also submitted that Marriage and Family, as social institutions play a vital role in the society and play a significant role in upbringing and nurturing of children and hence should not be construed such that it defeats or comes in the contradiction of society's morality and ethos. It also argued that the marriages in India take place under the personal marital laws or Special Marriages Act, 1954 or Foreign Marriages Act, 1969 and that the legislative understanding in the marriage laws of India is purely heterosexual. Marriage is a holy union of man and woman involving beliefs of religion, culture, customs, ethos, and societal values and change in those values can only be brought by parlia ment as it is the representative of the society. The change by admitting homosexual marriages would be violative of the religious personal & statutory laws resulting in chaos.

Analysis

Society is a set of people who live and persist together in constant social interaction. People here are governed by values, norms and a certain set of accepted rules and ways to live and stay in society. The state has been putting forth these arguments by keeping values of Heteronormativity as the center of marital laws. The State, hence, is holding back to the values and resisting the value change adopted by a part of the society by placing the values of customs, religions, and traditions on a higher pedestal than the constitutional values of equality & social justice enshrined in the Preamble and Article 14, 19 & 21 of Part III of the Constitution. This phenomenon where one value is kept on a higher pedestal than the other is called the Value Conflict. The Supreme Court in the KS Puttaswamy v Union of India (2017), held that Liberty guaranteed in Article 21 of the constitution is inviolable and cannot be taken away by the State. Also, Article 14 talks about equality before law and equal protection of law. The denial of legal recognition to homosexual marriages would result in deprivation of their insurance, inheritance & adoption rights. Hence, they would be deprived of equal protection of law solely based on their sexual orientation which is an unreasona ble classification amounting to discrimi nation under Article 15(1) of the Constitution which prohibits the discri mination by the state solely based on religion, race, caste, sex, place of birth or any of them. Further, these restrictions of non-recognition also violate the Fundamental right of freedom of expression and choice

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adults to choose anyone and marry as guaranteed by the Supreme Court in the case of Shakti Vahini v. Union of India

Conclusion

The Analysis shows that, the act of state of putting restrictions on the legal recognition of same sex marriages creates a value conflict in the society which in turn results in the denial and deprivation of Fundamental rights of the homosexual couples. The restrict ions further do not sit in accordance with the golden triangle of the Fundamental rights I.e., Article. 14, 19 & 21 and hence should be struck down and legal recognition needs to be given as certain rights of the deprived community stand dependent upon the legal status & recognition of their relationship

Parenting & Adoption: Why Parenting Becomes Such An Important Relation?

Families are essentially the pillars of society. Family structures serve as the cradle for the people who come to a society's population. In other words, families are responsible for raising children into grown-ups who will form society. Our society, like each of us, is told and created by our surroundings. Therefore, it may be more delicate to impact and change from single circumstances; nevertheless, society is a fluid thing that can be told for good or bad. Families are vital to society because they serve as the base upon which society is created. The values of imbibed it the families today reflect on the society in the future. This is on a more social and a larger level but when we talk of families at an individual level, For an Individual, the parenting helps one develop one's own kins and so that they perpetuate their own families, and one is surrounded by one's own people. In the context of homosexuals, it becomes important for them to have children as their own as for them, the concept of family and children is individual but equally socially symbolic in nature as it reflects equality between hetero parents and breaks down the conventional form of establishments of family as a Heterosexual parent couple with their Offspring. Therefore, parenting becom es or will become a crucial component of the Homosexual marriage and family institutions. It is also believed that Homosexual couples with children value marriage differently because they are more effective at promoting the legal and social context and importance of marriage rather than monist and individualistic meanings, contributing to a greater understanding of the implic ations of not having access to marital right The Indian context of this is much more amplified as in India is a collectiv istic society and often puts a lot of emphasis on loyalty and interdepende nce among the members of the family. It is also seen that the Joint family culture is more welcoming towards different sets of beliefs, opinions and is more flexible as they are already akin with living under a same roof but with different sets of minds. Hence, the researcher aims to analyze Clause 5(3) of the Adoption Guidelines, 2022 by Central Adoption Resource Authority challenged in Amburi Roy v. Union of India and currently clubbed with other petitions for same sex marriage.

Arguments by NCPCR:

The National Commission for Protec tion of Child Rights (NCPCR) had submitted to the Supreme court an intervention petition that it opposes to give the adoption rights to homosexual couples. Adoption happens in a "similar socio-cultural environment," which is "not possible" in the "scenario" of homosexuals, according to the NCPCR application. The NCPCR has said that the child's health, safety, and education are of the utmost priority whenever deciding on adoption. Relevant research reveal that a kid adopted by same-sex couples is impacted in socio-psycholo gical ways. The NCPCR cited the study in "Emotional problems Among Child ren with Same-sex Parents: Differ ence by Definition" stated children living with both biological parents who were married had the lowest risk of emotio nal difficulties. "Family research on two biological, married, and cohabiting pare nts has broadly demonstrated that both marital status and biological parentage are integral to children's well-being," according to the application.

Analyzing The Effects of Same Sex Parenting:

The Theoretical studies although sugge st that according to specialization, it is essential to have parents from both the genders I.e., heterosexual parents as the specialization idea implies that children may require a parent of each gender since parents' parenting techniques differ. Different gender parents teach different skills to the child. Furtherm ore, the kin selection theory proposes that, owing to evolution and the economic, physical, and mental expen ses of having children, parents practice discriminatory parenting and prioritize biological offspring. Therefore, it will be safe to assume that at least one of the Homosexual parents would not be biological parent of the child as the adoption by homosexual couple is still not possible in India. Hence, one of the parents will not be willing to invest in the

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child and finally the theory of discrim ination suggests that the Homosexual parents might experience stressors from society. The Social behavior showed a larger problem instead of the gender of the parents which rarely had any negative implications or negative defic iency, or difference spotted betwee n the children raised by the Homosexual and Heterosexual parents. Infact the results were quite the opposite of what the majority theories predicted. The research showed that the children raised by lesbian couples did not experience any negative implications of "fatherles sness" and despite of the prejudice faced the children grew and developed equally fine like their peers. Moreover, the tests further conducted that the "fatherless"children raised by the lesbian couples found themselves more secure and attached and encountered lesser behavioral problems. A study also found that children raised by the lesbian couple view their parents more available and approachable and were more likely to discuss emotional problems easily but equivocally the children raised by them dealt with more behavioral and attenti on related problems, a teacher reported in Belgium2. Another more probable conclusion was that such children were taunted about their family more frequently, although this reflects social rejection of their parents' orientation of sexuality rather than their gender. Studies frequently show that children with lesbian parent's face homophobia from their colleagues, but they depend and differ on whether these children are teased more overall or if the teasing concentrates on their parents' orientati on of sexuality. A study conducted in the US found that boys and girls raised by a lesbian homosexual couple were more accommodating of gender fluidity among colleagues. In UK research 12-year- old boys raised by mother (lesbian or heterosexual) did not vary from kids reared by a mother and father on masculine measures but scored more than usual on feminine measures. Being reared without a male parent therefore did not impair masculine development, but rather permitted males to acquire more gender flexibility. This was true for sons of lesbians and single heterosex ual moms, indicating a connection with gender of the parent rather than their sexual inclination. Hence this showed that children and parents in their personal capacity or as a family do not create a bad implication of each other's lives. The responses of researchers that show behavioral problems are a respon se to perceived prejudice or discrimina tory social behavior. Given the high time investing and costly processes involved in bearing and rearing of children, research has consistently demonstrated that Homosexual parents possess a better socioeconomic status (e.g., higher levels of income and education) than different-sex parents. Furthermore, Homosexual couples may be strongly driven to become families and may take extra initiatives, such as extensive family plan. In other words, hefty child-fostering expenditures may deter the less serious homosexual coup les from having children. Moreover, In the Indian context, the Juvenile Justice Act, Prevention of cruelty to children act 1986, POCSO Act for sexual abuse and relevant sections of the Indian Penal Code provide for easy protection of children from abusive households. Hence, there should be a scope and homosexuals should also be able to adopt children subject to the guidelines made by the Central Adoption Resource Authority (CARA). Laws should now be made consistent with the current changing time and with due examinat ions and tests, the Homosexuals should also get equal chance of parenting and having a family just like a normal heterosexual couple has in the India Households. Surrogacy should be well scrutinized, and it should be the duty of the adopting parents ensuring that the surrogate mothers should also be kept healthy in the due course of gestation and post-delivery. Same-sex families have issues comparable to other families, but they also face different kind of worries, similar as whether their child may be bullied because of their atypical family life setting. There are several measures one can, as a member of society, take to assist children of the Homosexual parents with this, similar as pointing out the special facets of your family life. We should also talk about prejudice being encountered by them and help them suppose why people joke or bully others, while admitting that this is not respectable conduct and that they have done nothing wrong to earn to be treated this way. Social sensitization is an equally key factor as the behavior and attitude of the homosexuals and their children depends upon the society's perception and attitude towards them. An inclusive society might be able to raise children who are inclusive and respectful towards other people's gender fluidity and sexual orientation. It equally becomes important that legislature, judiciary, and the executive, the three main organs should be sensitive towards the Homosexuals and their children. Hence, laws protecting the rights of such people should be made considering that they form a part of society and should be part of the

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structural functional society and not into conflict with its structure. The Mental health and dignity of the individuals and their children at public places, Schools, Washrooms and Religio us places should be also prioritized and there should be an effort to reduce the phobic and insensitive behavior towards them. Significant problems that same-sex parent families frequently discuss in counselling include Families with lesbian and homosexual parents may worry about prejudice in child custody and parenting decisions. The other parent of the children and the courts may use a parent's minority sexuality and/or gender identification status to restrict or reject custody in custody battles. The same-sex parents can expe rience the same array of co-parenting and family dynamic challen ges as heterosexual parents, plus the added complications of prejudice, stereotypes, and presumptions. Hence, when the Homosexual marriage rights are given, they should be drafted on the foundatio ns of Equality and should aim at elimination of the second and third form of inequality as prescribed by Max Weber. I.e., elimination of inequality based on social honor and inequality based on power. There should be equal dignity and power given to the Homosexuals, and they should not be treated in an inferior manner or conside red granted just because their sexual orientation is different from society's dominant class.

Conclusion

The Adoption rights given to the Homosexuals, can help make society a more inclusive place. Parenting rights should be given to them subject to scrutiny of the children's health and rights. The CARA & post adoption care units should keep a periodic regular check of the Adopted children till the child achieves the age of puberty and becomes major to take the life decisions. For Instances, A caretaker and a child doctor and a counsellor should be assigned by CARA for the scrutiny of the adopted child till the age of 12. The visits should be regular and a minimum limit of 2 visits per month should be mandated when the team would come to inspect the child's health and his/her living conditions and check whether the parents are complying with the CARA guidelines. The parents should be enrolled in sensitization programs that can be scheduled on monthly basis where they are supposed to fill in declaration forms to show their compli ance with the CARA guidelines and attach the proofs of declaration of no objection by the team of caretakers and doctors assigned. Both abovementioned policies shall be compulsory till the child reaches the age of 12. Post that, the parents will be required to come to the sensitization and declaration programs Bi- Monthly for the age group 12-16 & then Biennially when the child is in the 16-18 age group & by the age of 18, at last, the child must sign self-declaration where he does not object to living with the parents. Breach or non-compliance with these procedures would lead to temporary hold of the adoption and custody of the child and may lead to termination of adoption rights. Further, A major change should be to sensitize the children by introduction of proper sex education in curriculum of the secondary school where the children should be made aware of people with different sexual orientations and to treat them with equal respect. According to Linville, Because of the biological barriers faced by homosexuals in conceiving the children, relationships and issues with non-biological parents are frequent in Homosexual parented families. The conduct of the relatives of the same-sex couples with regards to their private relations is commonly different from the heterosexual ones; parenting relationships have the potential to further aggravate and comp licate this. For same-sex couples, parenting may be considered as a major step in validating their relationship, or it may be viewed with similarbiased and discriminatory perspectives, going to the extent of denial of the parental bond of one parent to the children. For Homosexual parents, it can be particula rly difficult to explain marital and relationship status and household comp osition to school personnel, medical personnel, children's friends, parents, and their own children. Despite of all family connections having tendency to be complex, Homosexual parented families' explanations of family bonds and relations difficult due to the lack of social agreements and acceptance and relevant media examples, prevalent prejudices & stereotypes about these relations in the society, and their fear of discrimination. Homosexual parents' ability to accept and acknowledge their identity, as well as their ability to manage residing in a heteronormative, homo phobic, and or prejudiced society, while bringing up their kids in a family unit that is not socially acceptable, may have an impact on their ability to be compet ent parents. These are the major concer ns that our law needs to answer before granting the Homosexuals the right to adopt, parent and foster the children.

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24. Supra.19

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Technological Advancement In The Healthcare Sector In The View Of Artificial Intelligence

Garima Srivastava* Shubhika Gaur**

ABSTRACT:

Background: In the recent decade, 3D visualization technologies such as virtual reality (VR), and augmented reality (AR) have gained popularity. The key reasons for the AR/VR approaches employed in healthcare were a safe, controlled, and reproducible setting; multi-angle display; and real-world simulation. Because of their accessibility and cost, AR/VR technologies have been embraced in a variety of fields ranging from entertainment to education. A technology that incorporates digital information into the user's real-world surroundings is known as augmented reality (AR) or virtual reality (VR). It proposes a novel method for medical treatment and teaching. AR/VR aids in surgical planning and patient treatment and assists patients and their families in understanding difficult medical conditions. The 3D showing models utilized inside these conditions are produced from clinical information, for example, attractive reverberation imaging (MRI) or figured tomography (CT), which can be analyzed and recovered without impediments.

Keywords: *AR (Augmented Reality), VR (Virtual Reality), Medical Technology, Healthcare Technology*

Objective: The purpose of this chapter is to provide a comprehensive assessme nt of user acceptability, current applicat ions, and the impact of AR/VR on skills development in healthcare technology

Method: In this article, we provide an overview of AR/VR in current biomedical applications and show cont extual investigations utilizing cell scie nce ideas, multiplexed proteomics pictu res, careful information for heart activiti es, and cardiovascular 3D models. We feature arising difficulties related to AR/VR innovations with regard to negative well-being impacts and an expense examination of particular stages.

Result: The AR/VR stages introduced in this part will be helpful for biomedical education, clinical preparation, careful direction, and sub-atomic information representation to work on learners' and understudies' learning, clinical activity precision, and the understand ability of perplexing organic frameworks and the healthcare framework. In addition, the chapter covers future trends and resea rch scopes in virtual reality and augmen ted reality for healthcare education.

INTRODUCTION

In modern-day years, the growing amount of technological upgrades has brought about a paradigm shift in healthcare delivery (Moerenhout et al., 2018). Virtual reality (VR) is one of the abruptly growing generations in health care (Kardong-Edgren et al., 2019). It is defined as a big kind of computer-primarily based totally softw are gener ally associated with immersive, surprisin gly visual, 3-tendencies that allow the participant to seem about and navigate inner areal or bodily world' (Lopreiato et al., 2016; p. 40). In different words, VR serves as a digital instance of real-life conditions that perform words, VR serves as a digital instance of real-life conditions that perform on the idea that a virtual world, real or imagined, can be created for clients to visualize and have interaction with (Radianti et al., 2020). The AR come to be first added via personnel at Boeing Computer Services Research named Tom Caudell and David Mizell in 1990. They effectively implemented using AR interior a business setting for wiring instructions for a modern-day aircraft being built. Workers might put on head-hooked-up presentations to look at overlaid cable positions projected via the eyewear. Augmented reality (AR) is related to interactive information of an actual-global putting anywhere the items that are living in the actual global are expanded via way of means of compu ter-generated sensory interest data, typic ally across more than one sensory modalities, notwithstanding visual, hear-able, haptic, tactile framework, and olfactory. Increased Reality suppleme nts the actual global with digital items in this sort of manner that those things coincide with inside an equal area in light of the genuine worldwide (Zhu, E., Hadadgar, A., Masiello, I., & Zary, N. (2014). The idea of VR originally arose during the 1960s, when Tom Furness created innovation that empowered stream pilots to get to three-layered (3D) avionic data. The term 'augmented

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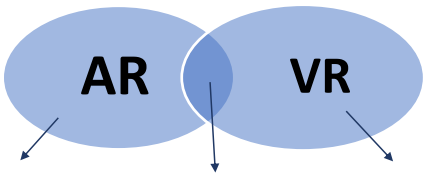
reality' become begat by Jaron Lanier, an essayist, performer, visual craftsman, and PC researcher, who previously involved it in 1986 in a conversation with Scott Fisher concerning Fisher's works of art in the so-alluded to an as virtual climate. An in the advanced term, 'artificial reality,' become advised throug h an American computer scientist and artist Myron Krueger, who become subsequently known as the pioneer of VR (1969). Krueger is likewise the writer of a VR machine that evolved in 1992 beneath the name 'cave automated virtual environment' (CAVE), in which a stereoscopic picture becomes project ed onto the ground and partitions of a cubic room. This generation become followed for industrial use as early because the 1970s. The first utility of VR in healthcare dates returned to the start of the 1990s. Recent years have visible extensive development in scienti fic technology, amongst others in rega rds to new, minimally invasive strategies carefully connected to digital reality (VR) (the so-referred to as digital medicine). VR is primarily based totally on growing a pc illustration of objects, spaces, and events. It is, therefore, a simulation of actual situations, an awesome person interfaces with actual-time simulation and interplay via a couple of sensory channels. At present, there are numerous specific approaches to creating a complete or partly virtual global [1]. Depending on what actual and digital gadgets are provided with inside the image, there are 4primary categories: (1) reality, the actual global; (2) augmented reality, in which computer-generated records merge right into an actual-world image; (3) augmented virtuality, in which actual-life styles records are merged right into a computer-generated global; and (4) VR, in which the sector is created totally with the aid of using a computer [1, 2]. It needs to be referred to that the introd uction of the world requires now no longer the best images, but additionally the stimulation of different senses: sound, smell, taste, and touch. The reason for virtual medicine is to limit direct touch and its affection for the human body. It may also consequently be utilized by college students of drugs who need to examine new techniques, in addition to the aid of using skilled docs and therapists who want to offer their sufferers optimal, minimally invasive, however powerful, and secure treatment methods. VR gives new approaches to increasing social skills, socializing, and interaction with different humanize customizable, realistic, 3D, completely textured, and animated avatars. using ext ended truth (XR) for medical purposes has been validated as beneficial for both sufferers and healthcare specialists, as well as different stakeholders inside the industry. The healthcare industry is truly one in the largest to adopt the XR generation. some of the XR use instanc es encompass supporting surgeons in higher carryout surgeries, immersing patients and healthcare experts in scientific statistics and education, and educating all internal XR environments. To ensure the safe and equitable use of technology, a moral framework needs to be developed from exceptional practic es throughout the medical and technolo gical fields.



PHYSICAL ENVIRONMENT
DIGITAL ENVIRONMENT
XR

Healthcare is an enterprise where stakes are very excessive as human existence is concerned and accordingly considering the preferred public in tremendous intri gue, the healthcare employer is open to new technological trends. The adequacy of healthcare is incredibly structured upon its usage of the maximum superi or solutions. So, AR and Healthcare appear a top-notch suit. the usage of AR in healthcare will permit scientific appro aches to be finished without problems and could boom the accessibility and availability of these offerings. AR in healthcare can extensively enhance the fashionable effectiveness and perform ance of clinical services. VR technology has an extensive variety of applications, which include military, nursing, scientif ic, training, enjoyment, and training. within the clinical discipline, clients are visually stimulated with the aid of their studies. This technology may want to make up for the masses of insufficient sources and gadgets and enhance conventional coaching techniques. VR is included numerous capacities which are presumably top notch for careful re-enactment tutoring, restoration, tormen ting the executives, conducting treatm ent, comprehensive VR well-being office treatment tutoring, allowing clients to cooperate with VR, as despite the fact that vivid with inside the genuine scene, which could lessen the specialized activity medical services as a result of carelessness. the utilization of VR to build computerized organs or tissues can help doctors with their compositions, grant clinical specialists and attendants the to talk extra effectiv ely with their victims, improve the cap capability of clinical docs to analyze patients, offer measurements roughly their contamination, and the advanceme nt of careful therapy, and are low-

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charge, painless mission an ex-put up assessment, preparing with inner the cure of disorder and specialized prepari ng will currently never again represent any genuine opportunity to the patient. be that as it may, the time spent on VR needs to now not be excessively extensi ve. On the off chance that VR is utilized for an extended time frame, it could without trouble reason wellness issues. This might also additionally bring about immoderate headaches, dizziness, and nausea. Augmented reality (AR), additi onally called augmented truth can also increase or beautify truth. The usage of ARs in masses of movies, which encom pass the "Minority Report" achieved through Tom Cruise in Azuma and the "Iron Man", the American superhero movie launched in 2008, is the most consultant. AR is an extension of VR, which complements the perceived imp act of integrating digital facts or items right into real-international surroun dings through laptop-generated picture s, gadgets, statistics, or scenes and interaction to decorate the belief. AR eraincludes3 characteristics "combining digital truth with the actual global", "real-time interplay" and "important 3-d space." AR packages and prospects are notably vast, many humans have execute d SNOW APP, which is one all AR applications, using face detection and AR generation, while the tele cells smartphone lens captures the face, the client can pick out virtual stickers, animation results, right away show at the tele cellular telephone display, blended with taking pics and video recording, so that photographs and video recording have become extra active and thrilling. AR technology mainly works by identi fying the target object, tracking it, then overlaying virtual images on the tracked object, which is then displayed by a display device. Three categories of AR exist at present: Marker-based absolute ly AR (marker-essentially based AR): alludes back to the black box as a marker, for better recognizable proof and following. Marker less AR (markerless AR): in light of the fact that the image handling age propels, the greatest today are markerless AR, which is to see and track the normal example, which can be pictures, wedding function solicitations, welcoming playing a game of cards, banners, business undertaking cards, credit playing a card game, DM, etc. LBS AR: LBS is area-primarily based services, or "mobile area provider", "geolocation provider" and "area provider". The geographic region is the simple utility of fee-added offerings. LBS is the cell tool GPS positioning characteristic to provide the existing-day area facts. The era used by Pokémon Go is based totally on the geo-area provider LBS AR, wherein gamer preserves their smartphones for gaming. With GPS positioning, map information is provided based totally mostly on LBS generation, showing the player's geog raphic location in actual time-time, blended with the AR technology players revel in the method of taking pics of precious dreams. on the participant's cell telecell smartphone display screen, thru the virtual camera lens, similarly, see the actual surroundings and might see the virtual Pokémon, it really is superimposed on the digital surroundi ngs inside the digital object. The mixed reality (MR) It is a larger perspective within the clinical community. MR is a mix of AR and VR capacities that join genuine and computerized conditions to establish another climate. Put together absolutely completely with respect to AR, MR gives a more promin ent practical and recognizably intelligent experience than AR, coope rating with virtual contrapti ons through genuine palms. additionally, to VR and AR glasses, Acer, Microsoft, and different makers have added MR glasses. Micros oft has brought HoloLe ns smart glasses, this is, MR glasses, MR software in the discipline of nursing and scientific fitness may be developed greater intensi vely.

LITERATURE REVIEW

Pai ZHENG, Honghui WANG, Zhiqia n SANG, Ray Y. ZHONG, Yongkui LIU, Chao LIU, KhamdiMUBARAK, ShiqiangYu, and Xun XU 2019 state that Virtual reality (VR) is a simulation of reality in which users are immersed in an enclosed environment that does not exist but gives the impression that it does. People who use this technology have the impression that they are executing tasks in real time. Users will feel satisfied as a result of this. VR technology was first utilized for gaming, but it is now employed in a variety of industries, including healthcare. Virtual reality is a viable alternative in many cases where doing something is either too expensive or impractical. Healthcare is an important area where it is investigat ed for doctor training, diagnosis, and treatment of various disorders. The major goal of this chapter is to illuminate the applications of VR. Minhua Ma, Lakhmi C. Jain, and Paul Anderson (2014) describe in the research that Serious gaming has grown into a multibillion-dollar economy that continues to expand in many areas. Since 2004, Starting around 2004, planning and creating computer generated reality (VR), expanded reality (AR) and serious games or embracing

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off-the-rack games to help clinical schooling, restoration or wellbeing advancement has turned into a promising wilderness in the healthcare sector as gaming era is cheap, broadly available, amusing and amusing for human beings of all ages, with different fitness troubles and sensory, motor and cognitive abilities. In this chapter, we provide the target market with an overview of the eBook and even a examine destiny traits in VR, AR simulation, and serious gaming for healthcare. Abdelmaged, Mohamed Adel Mahmoud (2021) mentioned in the paper, Implementation of Virtual Reality in Healthcare, Entertainment, Travel, Education and Retail Industries Virtual reality and other immersive technologies continue to transform applications across industries by enabling engaging user experiences across platforms. Computer generated reality (virtual reality) has progressed significantly as of late and is presently progressively being utilized in gaming, publicizing, diversion and represe ntative preparation programs. The boundless reception of augmented reality in the gaming and entertainment industry is driven by real-life simulations and engaging customer experiences. AR and VR technologies seem to have great potential in a wide range of industries. Businesses may want to consider using technology to absorb new customers and enhance their engagement. This study will look at the usage of virtual fact in numerous regions, inclusive of healthcare, leisure, tourism, training and retail. AV Ivanova (2018), VR & AR Technologies: Opportunities And Application Obstacles states that the evolution of VR and AR concepts and technologies, as well as current market trends, are discussed. The survey's findings reveal the major roadblocks to widespread adoption of AR and VR technologies: AR/VR solutions have significant implementation and operati onal costs; there is a shortage of high-quality content and imperfect hardware, implying that their utilization is ineffec tive. In view of the discoveries of the experimental review, an extensive rundo wn of benefits of utilizing virtual and expanded reality innovations has been gathered: quicker and less expensive picking up, preparing, and directing cycles, expanded effectiveness, lower expenses of components and supplies required, preparing support faculty; bringing expected puts down to workers' lives in extreme danger and wellbeing while exceptional preparation (clinical tasks and obtrusive strategies, clearing, mystery) is being led. Vincenzo Ferrari, Gudrun Klinker, Fabrizio Cutolo, "Augmented Reality in Healthcare", Journal of Healthcare Engineering, vol. 2019, The pursuer will track down valuable instances of uses in the medical services industry in this extraordinary issue, going from specia list patient correspondence through medical procedure, recovery, and fear therapies. Despite the fact that AR gadgets and applications have fundame ntally centred around enlarging the feeling of sight to date, and the expansion of different faculties has not yet accomplished a similar far and wide reception, Z. Qin et al. show the capabi lity of haptic criticism in expanding client openness and permitting instincti ve and normal connection with PC created components in their work. From a mechanical perspective, it's essential to take note of that, as R. Touatiet al. demonstrated, video-based following should be possible with a marker-less following procedure utilizing highlight recognizable proof on the patient. , José-Domingo LázaroÁ lvarez, Victor-Ernesto Garcia, Assessi ng the Opportunities for Virtual, Augmented, and Diminished Reality in the Healthcare Sector (2017) Depicts in the study about In recent years, the use of new technologies in health care has significantly increased, particularly in terms of exploring the potential benefits of Virtual Reality (VR), Augme nted Reality (AR), and Diminis hed Reality (DR) (DR). These technolo gies enable the dissemination of specific information and expertise to assist in the making of vital and difficult decisions. This chapter looks at how VR, AR, and DR are being adopted and absorbed in the medical industry. It examines the evolution of these breakth roughs, their benefits, and drawbacks, and offers predictions for their future expansion and influence. Alauddin, Muhammad S., Ahmad S. Baharuddin, and Mohd I. Mohd Ghazali. 2021. "The Modern and Digital Transformation of Oral Health Care: A Mini-Review" states approximately Dentistry is a branch of medication this is assisted by the virtual revolution. laptop-derived statistics processing and manufacturing have advanced due to the developing trend in dentistry digitalization. The internet of scientific things (IoMT), huge records and analytical algorithms, internet and communication technol ogies (ICT) consisting of virtual social media, augmented and digital fact (AR and VR), and artificial intelligence have all aided this fulfilment (AI). The

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interaction of these advanced virtual functions has transformed the healthcar e and biomedical industries, in particular in dentistry. This plethora of technolog ical applications will no longer only be capable of streamline oral health care, facilitate workflow, improve oral fitness at a fraction of the cutting-edge conve ntional fee, and relieve dentists and dental auxiliary team of workers from repetitive duties, however they will additionally be able to relieve dentists and dental auxiliary. SabuzimaNayak& Ripon Patgiri6G Communication Tech nology: A Vision on Intelligent Health care (2021), From 2030 onward, 6G is a promising verbal exchange generation with a view to dominate 's complete health enterprise. it'll rule no longer handiest the fitness enterprise but others as nicely. Many sectors, together with healthcare, are projected to be revolutionized by using 6G. Healthcare can be AI-driven and reliant on 6G verbal exchange technology, changing our way of life perceptions. the main constraints to health care nowadays are time and space, which 6G can be capab le to conquer. moreover, 6G might be found out to be a game-converting tech nology within the subject of healthcare. As an end result, we foresee a healthcare machine for the future of 6G verbal exchange era from this angle. diverse new methodologies, along with excell ent of life, have to additionally be brought to improve our way of life, that's included in this angle. Selvakumar Samuel (2022), Immersive Technologies in the Healthcare Space indicates about Various digital advances have always benefited the field of life sciences and healthcare. Immersive technology is one of the most effective technologies for healthcare. Immersive technologies such as VR, AR, and MR merge the real and virtual worlds to provide a fully immersive experience. All immersive technologies are now referred to as Extended Reality (XR). With the convergence of other related technolog ies, these technologies are now utilized in practically all disciplines. Immersive technology will certainly play a function inside the healthcare enterprise. With the use of diverse virtual technology and software program techniques like AI-primarily based software procedu res, smart devices, sensors, robots, excessive-overall performance processo rs (quantum computer systems), 6G networks, and other well-matched technologies, it is able to enable a huge variety of use cases. Sheng Bin, Saleha Masood, Younhyun Jung, Virtual and augmented reality in medicine (2020), This chapter has mentioned virtual truth (VR) and augmented reality (AR) generation, and also their several applications in biomedicine. VR is normally noted in those applications as immersive multimedia or laptop-simulated fact of a scientific putting that permits the consumer to engage in that placing. The augmentation of virtual content to a live, direct or indirect view of a physical, real-world context is what AR is all about. This chapter begins with an overview of VR and AR technology, followed by examples from various biomedical applications, such as using VR in surgical planning simulations, using AR in minimally invasive surgery, using VR/AR in mental health treatment, and so on.

APPLICATIONS IN HEALTHCARE PRACTICES

VR publicity remedy: The improvement of VR content material fabric has moved from the gaming region into the clinical area. VR era brings the actual environment into people's minds and might heal people's anxiety and worry along with Acrophobia, claustrophobia, and social tension thru VR "exposure therapy". The Limbix company additionally makes use of publicity remedies thru VR technology that lets sufferers securely uncover a scenario with the useful resource of using sporting a VR device and truly exposing themselves to excessive construction to deal with Acrophobias; or with digital spiders that permit sufferers to triumph over the difficulty of spiders AR autism remedy: The Autism Glass task of the scientific college of Stanford University uses the Google Glass AR generation to assist youngsters with autism in deciphering others' emotions and hopes to help them correctly decode feelings without sporting the Google Glass with inside the destiny, however with their previous practices and memories, therefore expand a social relationship as regular humans do. AR phantom limb pain remedy: Phantom limb ache refers to an affected person who has misplaced a part of their limbs but can never less experience the presence of it or experience the trials in their amputated limbs very often. Phantom limb ache remedy is using AR era.AR generation lets amputees peer the virtual arm seem at the display, while the affected person actions the amputated arm, the virtual arm at the display screen may also seem inside the identical motion, via the interactions to set off and permit the affected person to control the at the start amputated limb with their brain, to acquire a restoration impact.

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APPLICATIONS IN MEDICAL EDUCATION

VR virtual anatomy: The Anatomize desk is a digital anatomical desk is platform designed for anatomy teaching via way of method of visualizing the distinct systems of a part of the human frame, inclusive of the top and neck, chest, stomach, pelvis, joints, and the opportunity components, it has furni shed trainee and university college students of scientific establishments or faculties an exceptional coaching material. Clinicians, scientific college students, and scientific teams of workers also can recognize and study greater quite simply. similarly, it can assist physicians in a few dialogues of studies in addition to displaying the affected person's preoperative reasons, so that sufferers can higher recognize their surgical situations, UTA has additionally delivered Taiwan's first virtual anatomical table (HTTP: //www.isu.edu.tw/ipages/344-2-2276 2.html). VR surgery simulation: Many corporations have grown with the VR surgical system, essential VR has evolved a knee arthroscopy device that simulates an opportunity knee cap surgical treatment and lets in medical doctors to correctly administer ana esthetics at some point of surgical treat ment. The VR medical visualizati on platform advanced with the help of Surgical Theatre organisation simplifies the technique of making plans surgical plans and increases surgical precision so that the physician can better understand the surgical technique and offer the safest and best surgical procedures (HTTP:// www.surgicaltheater.net/). similarly, to supplying a volatile surroun dings, VR surgical simulation also can allow trainees to explore errors and numerous hazards associated with VR operation. In Taiwan, extra hospitals have delivered VR into their surgical teaching. for instance, Taipei Veterans well-known clinic makes use of VR technology in "endoscopic skull-primarily based surgical anatomy teaching", which permits surgeons to practice more skilfully and shorten their view period, which nicely reduces feasible mistakes in surgical coaching. (HTTP://www.healthnews.com.tw/ne ws/article/34341/). AR anatomy teaching: In traditional medical education, human anatomy is added in anatomy, body structure, and pathology. but, factors can fine be made via photos, motion pictures, or fashions from the past. It was a great deal less feasible for university college students to charact eristic over and over on sufferers to decorate their gaining knowledge of consequences. With AR and VR adva ncements, three dimensional stereosco pic noticeable outcomes can be delivere d for a vivid revel in, with the main benefit of saving time and charges. another model is the life structures of the coronary heart. Instructors will now no longer be capable of providing the “real coronary heart” to every student. via AR era, university students can down load the e-book scanning APP or actual coronary heart snap shots with the resource of using the usage of clever devices. A digital coronary heart will seem immediately on the show display screen of the device and the size of it could be adjusted without troubles with the resource of using zooming internal and out or rotating it to observe the coronary heart pattern from top notch angles and its systems of it. Life systems 4D is an AR Human Anatomy APP that advances roughly organs, the coronary heart, and the breathing machine with inside the body. download Anatomy 4D APP to your virtual brilliant gadgets (telephone or tablet) and investigate the cardboard to legitimate away show the three-D model of the coronary heart on the card. Pivot the cardboard to look at any perspective on the coronary heart from each point, as well as instructing with inside the schoolroom as a preparation texture, college underst udies can inspect at home. other than getting utilized as instruction subst ances with inside the talks, undergrads additionally can do oneself acquiring understanding at home with the coolest activities of this APP with the valuable asset of the utilization of tapping the "menu" with inside the reduction right corner.

CARDIOLOGY

three-dimensional visualization of cardiac anatomy in XR is the most broadly used and one of the simplest medical applications used for teaching /education in addition to pre-operative making plans. Many X-ray-based totally scientific programs had been develope d, along with affected person training and preoperative simulation of cardiac methods. But, numerous clinical devices/applications are the usage of XR to guide and help patients and healthcare carriers in diverse disease management and treatment methods. In a pilot study, researchers showed that mission-focused VR schooling supplied huge extra benefits to patients improving from persistent stroke. body VR to three-D construct radiological imaging facts (from CT, MRI and pet scans) inside the direction of pre-

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procedural making plans of patients with cardiovascular ailment

NEUROSCIENCE

similarly, in neuroscience, VR is consid erably explored and tested by way of researchers as it holds excessive capabilit y for its potential in providing behavio ural changes. virtual truth publicity remedy (VRET) is gaining loads of attention and help for treating specific phobias. In VRET, sufferers are expose d to a virtual/simulated surroundings similar to their actual-life fear or phobias. In a big meta-analysis, which blanketed 14 medical trial studies, sufferers who acquired VRET showed a tremendous behavioural alternate and had been better capable of handle their fears compared to sufferers who did now not get hold of VRET.

PHARMACY

Improved schooling supplying in the fields of cardiology, neuroscience, and plenty of other disciplines inclusive of pharmacy is exhaustively being explo ited. Different packages in the improv ement display various useful areas where XR could make an effect. XR has the ability to revolutionize affected person self-care by using motivating healthier lifestyle alternatives. For instance, an increasing number of pharmacists at the moment are assisting patients cease smoking thru virtual truth aware publicity remedy (VR-MET). The VR-MET approach is based on the publish ed studies in which sufferers learn and cope with their cravings via a sincerely simulated environment. Medical practices: MR has been cap in a position to utilize helping surgical treatment in scientific practice. HoloLens MR glasses are a mixture of Scopes scientific gadgets with Micros oft, surgical procedures may be deliberate preope ratively thru the Holographic Naviga tion Platform to assist docs carrying out quicker and extra correctly in the course of the operation and decrease the threat of surgical treatment and shorten the surgical treatment workingtime(https: //navigation.scopis.com/). Applicati ons in medical education: HoloLens MR glasses have furnished interplay most medical university professors and univ ersity students with inside the lesson of reading anatomy. HoloLens offers a three-D digital human model. students can interaction with the digital human version thru gestures or by dissecting the compo nents of the virtual human frame. It has transformed the conventio nal way of breaking down about life structures (https://goo.gl /z7BjTw). XiuChuan wellbeing office and Qin Yi college of mechanical expertise and age have furthermore fostered a logical utilization of MR glasses. it can assist with having a look at the patients under endless pores and skin organs, veins, and nerves and find the careful net page extra strongly ahead of time than the activity. Positive Impact of AR/VR in the health industry Realistic experience: Paper-based gaining knowledge of substances can be deceptive due to the fact it is tough to visualize the three-D relationships between components based totally on 2d materials. AR and VR create practical virtual items that give the maximum realistic impression of the ways the human body is construc ted and the way it works; permitting users to engage with the virtual surroundings realistically gives a high level of immersive ness and easy operation of virtual topics with limitless repetition. This lets you to pick out and look at spatial relationships in the 3-d areas. Low risk and high safety: Teaching materials, for example, genuine bodies are restricted and severe capacity limita tions apply because of well-being and security regulations. Training in augme nted reality offers far less risk to the patient than when practicing with a real patient, provides an opportunity to acquire and perfect skills, and greatly enhances learner confidence.

Cost-effectiveness: The cost of AR apps is relatively low in contrast with the fee of setting up anatomy theatres and supplying cadavers and specimens for college students to practice. additionally, VR simulators provide an incredibly low-fee possibility for reproducible training in diverse environments and problem tiers.

Higher efficiency: Pills, cellular phones, AR glasses, and different optimized gadgets may be employed as hardware for running AR programs. Accordingly, AR and VR provide standardized medical education on demand regardless of geographical location, rather than the freshmen running within the laboratory where they have to depend on the schedule and the availability of disposable subs tances.

Availability of expert assistance: Augmented fact apps can easily join trainees or faraway employees with mentors or experts who can provide commands or help in real time.

Accessible to all: They do now not improve ethical troubles in comparison with different animal and dwelling tissue simulation fashions. VR and AR-based absolutely clinical instruction envelop training applications for people with understanding handicaps (a boundary

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to traditional reading material based thoroughly dominating).

Shortened training timelines: In preference to the school-led day-long event, AR and VR will allow the simulation to be more like going to the gym. Newbies could be capable of research on the top of their shift or maybe at home, letting them shorten the training timelines.

POSITIVE IMPACT OF VR ON HEALTHCARE

VR does now no longer offer a sole solution to a scientific issue- it handiest gives a capability for the remedy that desires to paintings blended with the clinician's instinct and knowledge. Thus, the digital fact is a sort of HCI (human-pc interaction) this is significant to trendy medicine. Here are the advant ages of VR in healthcare:

FOR PRACTITIONERS

Healthcare experts can higher serve their sufferers with the convenience of use and effective processing energy of VR- at the same time in the end saving cash and nevertheless enhancing affected person care. Good-first-rate VR can train the inspiration and information of numerous techniques to clinical students, dental practitioners, and aspiring medical doctors who want to exercise their craft to come to be qualified. These function as training simulators

FOR PATIENTS

Healthcare experts can higher serve their sufferers with the convenience of use and effective processing energy of VR- at the same time in the end saving cash and nevertheless enhancing affecte d person care. Good-first-rate VR can train the inspiration and information of numerous techniques to clinical students, dental practitioners, and aspir ing medical doctors who want to exerci se their craft to come to be qualified. These function as training simulators.

VR generation can significantly enhance affected person care due to the fact it's far manner extra interactive than any video, audio, or different 2D media. VR makes the entirety snug and life-like for patients- as a result making them sense like they entered an unrealized surrou nding and are bodily present inside it. This generation is especially useful in mental therapy, intellectual fitness diagn osis, the remedy of anxiety, ADHD, neural disorders, and extra. Scientists can expand drugs with the aid of using simulating a surrounding for drug preparation. Thus, ache control is likewise feasible with the use of digital truth remedy applications.

BENEFITS OF AR IN HEALTHCARE

There are various noble benefits of AR applications in healthcare. Let us look at some of these:

SURGICAL ASSISTANCE

AR can create 3-dmodels of tumours or organs. The health practitioner can use this as a connection to view the version thru a hands-free headset while appea ring during the surgery. The version seems to hover as a hologram (because of the headset) over the surgical field. The doctor can then use an on-display screen notation for guidance. The incisions and different surgical methods can get superimposed on the patient's real-time picture with inside the shape of directions. The doctor can then see it and observe an appropriate direction for appearing the surgery.

REMOTE GUIDANCE

By the usage of an AR app in healthcare, a professional can offer remote guida nce to a health practitioner. A two-manner video and audio headset will permit each of the professionals to look at the identical view of the affected person. Then the professional can manual the health practitioner in a real-time surgery. Thus, the affected person can get a higher remedy and a more secure outcome.

VIRTUAL TRAINING

Just like with inside the previous case, dentists, clinical practitioners, and college students also can gain from digital schooling the usage of VR. Here, a faraway mentor can apprehend the student's view and endorse them at the procedure/ diagnosis (even though they're in every other location). The college students can enjoy the system of getting to know with the aid of using doing. This way, they can advantage of hands-on revel while nevertheless lowering the chance to patients.

DIAGNOSIS AND THERMAL IMAGING

The AR programs in healthcare are beneficial for affected person diagnoses. It lets the healthcare providers collect details, reports, and information approximately the affected person. They can carry out full-frame scans to visualize those signs and symptoms and discover them. Thermal imagining allows for assessing an affected person's temperature. Diagnoses in the AR era lessen the want for private PPE (safety equipment) via way of means of minimizing touch among the affected person, nurse, in addition to doctor.

TELEHEALTH AND PROCTORING

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Pandemic has made telehealth the desired manner of turning in health care- for the reason that sufferers don't need to hazard the want of travel the health practitioner for receiving care. According to Pricewaterhouse Coopers, telehealth become one of its Top Health Industry Issues with inside the12 mon ths of 2021. AR allows in making the telehealth go to sense extra like a work place go to. It allows the medical doctors remotely carry out a visible test and scre en the critical symptoms and symptoms of outward signs and sympto ms in their sufferers. As a result, the affected person gets a face-to-face revel in with the health practitioner without exposing themselves to the risk of contamination.

FUTURE OF VR AND AR IN HEALTHCARE

One of the marketplace drivers for both- AR and VR- is the capability discount of manpower (and likely cost). But the number one motive force is the scope of clinical improvements that it provides. Scientists are searching ahead to utilizing VR/ AR clinical apps alongside studies stats to provide you with higher diagnoses with exams like ELISA. Gene therapy, in particular, has visible a widespread improvement in the usage of higher computers. VR/ AR can probably provide you with comparable remedies which can increase a therapy for cancer, diabetes, and AIDS, or even assist with higher studies with stem cells, plasma, operating of T cells, and lots more.

ADDRESSING THE DISPARITIES

It isn't any brainer that each era has visible its roadblocks. In the case of AR/ VR healthcare, those obstacles are n't simply technological- but addition ally psychological. The former barrier could be very evident- we don't have sufficient sources to expand AR and VR solutions, in particular for the commone rs. The era continues to be in its infancy, and the value of improve ment can now and again be loopy expensive. But with the normal improvement of the latest options and growing manufacturing of required uncooked materials, this problem can also additionally give up to exist over some decades. Let us now deal with the latter problem. Humans are nevertheless apprehended in the directi on of the usage of the era in each process- in particular on the subject of saving some other life. To be clear, clinical practitio ners won't thoughts deploying a VR/ AR clinical app for their everyday remedy and prognosis is lengthy because it nevertheless works beneath human supervision. A gadget can create dispersions. Machine gaining knowledge of and IoT are never the less now no longer advanced sufficiently to update the human intellect. Thus, the important problem at the back of the deployment of any VR/ AR clinical app and carrier in a clinical method is the hazard that it carries.

WHAT LIES IN THE FUTURE?

The pace of alternate clinical exercises has been relentless. The inter profess ional nature of care and the complexity of healthcare structures are massively unique nowadays than they have been twenty years ago. It is not a query of whether or not a character can keep or get admission to facts, however, how they use them, examine them and practice them to affected person care. Hence, there may be a pass to update rote learning (a system of memorizing facts primarily based totally on repetit ion) with extra clinically applicable and realistic teaching. Hence, immersive technology consisting of AR/VR has won momentum as a way of handing over experiential learning. In the future, VR and AR becomes a vital part of healthcare training. The technological trends in AR and VR will permit shared simulated scientific experiences. This will facilitate first-class inter professi onal schooling at scale and rework how we supply schooling to the clinicians of the future.

ETHICAL ISSUES OF MEDICAL VR

whilst research programs are installed that allow sufferers to go into a VR environment, then suitable safeguards have to be taken into consideration to guard sufferers not only from potential unfavourable effects attributable to the experience, however also from abuse by ambitious medical researchers. This process requires outside evaluate: instit utional evaluate boards and studies ethics committees will necessarily beco me familiar with the capacity risks of VR reports and be able to advantage a knowledgeable view on the capability risks to inclined patients of VR stories. This practically method that mentally disabled and/or physically disabled patients are unable to make a knowledge able decision about a digital fact enviro nment, and primarily based on their interest and exuberance for the era, this will similarly cloud their judgment. Healthcare centres, where the creation of a virtual reality environment is necess ary, must respond to the challenge of technology in advance. Before patients are exposed to VR environments, these centres should implement "clinical safety" standards, as there is a possibility

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that VR systems may inadvertently introduce errors or distortions caused by programming errors, causing mental distress to the patient. in the case of addicted sufferers whose first-class of life is significantly decreased by a persist ent disorder or disability, a VR environm ent can be more suitable than reality. what is more, putting sufferers in a VR environment increases fundamen tal ethical problems concerning unfast ened will, the character of interpersonal relationships, and how the conseque nces of our interpersonal conduct are understood. finally, privateness is the maximum crucial and critical problem that needs to be addressed at once, as the collection and use of information through third events can effortlessly be misused and misused for malicious functions.

RISKS OF MEDICAL VR/AR

the usage of X-ray imaging in fitness care is related to several risks that ought to be addressed earlier than its ordinary use in health care. a number of the key risks are indexed as follows: The immersive and potentially persuasive nature of XR technology can affect how people interact with the generation or the surroundings or the facts contained inside it. furthermore, it could even affect how people see every other or themselves in the XR surroundings. Privateness and protection of personal and fitness information. XR "sense-like-actual" environments and simulati ons have a high potential to distract users from "actual reality". within the past, XR users have suggested a few signs or facet results, which includes feeling dizzy or disoriented, and nausea from overuse. there may be additionally a high hazard of accidents or injuries as the person may additionally come to be disoriented because of the immersive and shiny XR environment.

CONCLUSION

The generation of VR, AR and MR is acquiring and greater ubiquity in the field of medical care. Further to upgrading the burden of conventional clinical strategies and tutoring, it might likewise blast the proficiency and commonplace execution of nursing and clinical wellness administrations. There are a few specialized issues that poor person all been overcome. alongside the mix of nursing and clinical wellness care reality framework, clearness and spine of the showcase photo, equipment strength, and so on. currently, various instructional, scientific establishments and manufacturers growing new techniques to overcome a number of the associated technical problems. In brief, the big popularization of AR, VR and MR in nursing and scientific healthcare is quite anticipated.

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Artificial Intelligence And Its Impact On Market Participants And Ancillary Issues World At Large

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ABSTRACT:
AI is considering as a recent development of technology but it can be traced back to 1940 when a Brittan Mathematician used a digital algorithm and invented first digital chess game. The AI is the competency of a digital computer or computer-controlled by robot to execute assignments usually perform tasks commonly associated with human beings is called Artificial Intelligence. In simple words, AI is simulation of human intelligence process by machines, especially computer system. some examples of AI include Digital Gaming, Maps and Navigation, Text Editor and Auto- Correction, Search and Recommendation Algorithms, Digital Assistance, E-Payment etc. AI followed modern approach consist of both human and ideal approach. AI is also perceived as an engine of productivity and economic development. It is boosting the efficiency with which action are done and immensely improve the decision-making exercise by analyzing large amounts of data. It is also spawning new commodities and services, merchandise and manufacturing, thereby raising purchaser ultimatum and generating latest earning streams. However, AI may also have an extremely disruptive effect on the different perspective of society including economic also cover under this sky. Some scholar deterrent that it could dominance to the creation of magnificent firms – hub of affluence and consciousness that could have detrimental impact on the wider economy. It is widening the interlude between developed and developing countries, and increase the need for employee with certain skills while rendering others redundant; this latter will show very bad consequences for the labor market. Experts also warn of its potential to increase inequality, push down wages and shrink the tax base. When the tax base shrinks the economy of the country will lose its stability and lead to an economic crisis. Not only economic crisis but also, many people will turn jobless and technically unemployment will increase that leads to serious consequences. As machine is created by human being become a curse to man's livelihood because the rights of people are taken by the machines. The present paper is bringing a unique perspective to Artificial Intelligence's impact on market participants and ancillary issues world at large. So here the paper is about solution for all upcoming threat created by AI.

Keywords: ***Artificial Intelligence, Algorithm, Robots, Economic and Human Right.***

INTRODUCTION

Artificial intelligence is ability of computer program or machine to acquire a knowledge and think as mankind is competent to do so and bran ch of computer science that put efforts to devote computers sharp and quick-witted. AI followed modern approach consist of both human and ideal approa ch, the modern approach makes possib le two goals to pursue in artificial intelligence i.e. a. Systems that think like humans and act like human. b. Systems that think rationally and act rationally, systems consist ideal method, inspect a circumstance objectively, recognize the problem, explore feasible solutions, and evaluate their effectiven ess. and systems that think and act based on or in accordance with reason or logic. Artificial agents are coming into sight which have been executing the model approach. Robots is one of example of Artificial intelligent agent. The present paper is compiling all the critical aspect arising along with the development and growth of Artificial Intelligence and how the functioning of Artificial Inte lligent effects human basics fundam ental rights and put them in danger. This paper also concludes some sort of solution and suggestion which can restrain upcoming threat to human community. **How AI is Emerged** AI is not latest growth of technology. The modern area of AI came into existence in 1940, but it took decade of effort to make essential progress in the direction of developing an AI system and making it a technological reliability. There are following below development stages since from where AI in coming of age till present. **Origin of AI** AI can be traced back to 1940 when a Brittan Mathematician used a digital algorithm and invented first digital chess game. In 1943, Warren McCulloch and Walter pits proposed a model of Artificial Neurons which was recognized as AI. In

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1949, Donald Hebb determined an updating and refurbish rule for modif ying the connection strength between neurons and his rule is now called Hebbian Learning. A Turing Test came into picture in 1950, one of English mathematician Alan Turing published "Computing Machinery and Intellige nce" in which he proposed a test which inspected the machine ability to display intelligent behavior as equivalent to human intelligence. The beginning /birt h of AI Logic theorist was created by an Allen Newell and Herbert A. Simon which was first AI program had proved 38 of 52 mathematics theorems in 1955. American Computer Scientist John McCarthy was adopted the word "Artifi cial Intelligence" at the Dartmo uth Conference held and considered AI as legitimate branch of study in 1956. In this period, Computer language such as FORTRAN, LISP, or COBOL were invented. The first Chatbot (ELIZA) was created by Joseph Weizenbaum in 1966. In 1972, intelligent humanoid robot was built in Japan which was named as WABOT-1. The period between 1974 to 1980 where computer scientist dealt with a severe finance scarcity from government for AI researc hes. In 1980, the first national confer ence of the American Asso ciation of Artificial Intelligence was held at Stanford University and Expert systems were programmed that proceed toward the decision-making compet ency of a human expert. The period between 1987 to 1993 where investors and government prevented funding for AI research as it was costly effective. **The Emergence of Intelligent Agents** In the year 1997, IBM Deep Blue defeated world chess champion, Gary Kasparov, and became the prime computer to conquer a world chess champion. AI ent ered the home in the form of Roomba, a vacuum cleaner in 2002. AI entered in business world and companies such as Facebook, twitter and Netflix also began to operate AI. In 2011, IBM's Watson succeed jeopardy, a quiz show, where it had to solve the complex questions as well as riddles. Watson had validated that it could understand natural language and can solve proble matic questions quickly. In 2012, Goo gle has introduced an Android app characterize as "Google now", which was able to provide information to the user as a prediction. In 2014, Chatbot "Eugene Goostman" won a compet ition battle in the notorious "Turing test". In 2018, The "Project Debater" from IBM has argument on complex topics with two master debaters and also performed extremely well. Google has demonstrated an AI program "Duplex" which was a virtual assistant and which had taken hairdresser appointment on call, and lady on other side didn't notice that she was talking with the machine. In 2019, Hyperloop technology was invent ed. It has a tube modular transport system that own capability to run free of friction and form of under-ground tran sport and it can cover 35 km distance in 5 min. in 2020, A High-Tech Tutor i.e. ABII. It aids kids to acquire a knowledge of math and reading. AI has widespread every sphere of life such as Transport, Education, Games, Healthcare etc. and developed to an extraordinary level since past till present. The concept of Deep learning, big data, and data science are now trending like a boom. Nowada ys market participants like Google, Facebook, IBM, and Amazon are induced to invent, innovate, and create amazing automated product to obtain profit motive.

AWARENESS B/W INHABITATION & CORPORATE BODIES

According to IPSOS (Multinational market research and consulting firm with headquarter in Paris, France), held recent survey in January, 2022 for the world economic forum attribute toward Artificial Intelligence in 28 countries around the world and it was founded that 64% adult aged about 16 to 74 having good understanding about AI and 66% adult with same aged expect products and services using AI will profoundly change their daily lives in the next 3-5 years whereas 39% of adult afraid or worried about products and services using artificial intelligence. Globally country survey profound that only average i.e. 48% adult believe that product and service using artificial intelligence have more drawbacks than benefits. AI is controversial subject for business, before accepting the concept of AI, company must rely on particular subjects these are following below: a) Whether the company culture as to accepting AI. b) Whether the company is competent to invest for its implem entation? c) Whether company is standby to displace everything into automated? d) Whether the automat ion displacement will lead risk of safety and security in future? For understan ding the static of aforesaid question, company should have acquainted with AI general outlook for business use. In 2022, 35% of businesses worldwide are using AI and 42% of companies are exploring AI for its implementation in the future. A number of them were not sure what it is or how it would affect their particular companies. They und erstood there was considerable potential

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for altering business processes, but was not clear how AI could be deployed within their own organization.

CRITICAL IMPACT ON IT FUNCTIONING

The use of AI in critical infrastructure systems will functioning significantly over the next some years. critical system of AI is those that directly affect the health, safety, human rights and welfare of the public and in which failure could cause loss of life, serious injury or significant loss of assets or privacy or critical systems include power gene ration and distribution, telecom muni cations, road and rail transpo rtation, healthcare, etc. AI invent a new techno logy, for execution the intellect or idea of technology it is necessary to operate on the latest hardware and software to stay updated and meet the latest requirement, the plenty of time and reso urces can estimate the high monetary for accomplish the implementation of AI. Illiteracy leads critical functioning of AI. According to latest figure, the world's 20 most illiterate member of United Nation including Niger' illiterate rate is 80.9%, Guinea 69.6%, South Sudan 72.3%, Burkina Faso 64.0%, Central African Republic 63.2%, Afgh anistan 61.8% and so on. Aforesaid data about illiteracy in every aspect of education but every country with a reasonable populace are actually unaw are about the topics that are not their area of expertise. People are not only illiterate about AI but also about automotive engineering, computer scie nce, advance mathematics, infor mation technology etc. person who is illiterate about AI is incapable or inadequate to use as it is complicated set of techn ology. Hereby it spread discrimination between group of people who is literate to AI and know how to operate machines and people who doesn't even aware what exactly AI is and does not have skill required to use it responsibly. For example: A student is preparing a government job exam from last 2 years for which he paid to educational institution. before examination, He brought a wristwatch for R.s.. 5000/- with intention that it will tell him exactly how much time is left during an exam. But unfortunately, hands of wristwatch started to stuck and also move at same time which indicates what the time is? Now what the consequences he faced that did not attempt many questions and he knew the answer since wrist watch was misleading him and he was not skilled to fix the wrist watch likewise he was not qualified the exam. This is a complicated technical task for people designing AI therefore People can't trust AI blindly due to it uncertain measures whether the person is literate or illiterate about AI. AI is as far more dangerous as it can cause loss of people life and put them in serious injury. Many world's prominent business persona lities, scientist, researcher and engineers enlighten through their prediction about AI that if AI development is not stopped, world demolition when robots will start dominant Human in the future. 'Elon Musk' co-founder and CEO of Tesla, said "AI is one of the biggest risks to the future of civilization as it is far more dangerous than nuclear" the said statement is seeming to be correct when real event become evidence of it. On July 19, at the Moscow chess open competition, a chess- playing robot unavoidable fractured a 7-year-old boy's finger when the youngster attempted a quick move and proceed without granted the device enough time to complete it task. In 2015, a contractor aged about 22-years also were killed by robot at one of Volkswagen's German Plant, grabbing and crushing him against a metal plate. People is not familiar to AI and lack of human understanding of robotic processes can frequent cause serious injury and even loss of death. Artificial intelligence improves the speed of what can be acco mplished. In many cases, it surpassed ability as humans to follow along. Automation practice lead nefarious acts such as phishing, delivery of viruses, software, obtaining information from a computer through unauthorized access, trafficking in a computer password that can be need to access a computer, transmitting spam, damaging computer data and taking benefits of AI systems because of the way they see the world, might be complicated for humans to uncover until there is an actual quagmire to deal with. The use of artificial intelligence violates the right to privacy through automation surveillance and disturb the freedom of expression. monitoring of citizens activity continuo usly increases their trepidation of being monitored and the probability that they will not exercise their fundamental rights, such as freedom of speech and expression and others Human Right are universal and enforceable codified in an international body of law. Government and it branches and businesses are both expected to appreciate human rights with the evolvement of AI, AI encroach es the right to confidential i.e. privacy as AI provide aid to public surveillance and right to equality as AI displace human labor into robotic labor specially in manufacturing and AI has shown beyond doubt to be a threatening remar ks menace to equivalent safeguard,

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economic rights and fundamental liberties. Social media provide deceptive information due to bad algorithm and dangerous consequence can be scene. Social media can hack human mind. The fact is, social media wouldn't subsist if it weren't for AI. Many separate phases of social networks depend on technology. For instance, if an individual use Twitter, he'll surely notice that he recei ved recommended tweets and profiles that he might want to follow. Likewise, how to product recommen dations operate on Amazon, AI analyzes behav ior and interest on the platform to find content that person might like based on his/her past activity. It assists them to make users spend more and more time on the platform, thus increasing and improve their user engagement rate and experience. Many social media platfo rms also use AI as a way of surveillance and spotting abuse in comment sections and messages. Facebook, for instance, operate an AI instrument known as deep text to spot instances of abuse. According to Faceb ook, the end goal of this technology is to build a system with the same level of intelligence as a human. Algorithm and Terrorism, 'The Venomous Use of Artificial Intelligence for Terrorist Pur poses' is to contribute to understan ding the potential risk of AI falling into the hands of terrorists. Terrorist groups will be interested in artificial AI and lethal autonomous weapons for three reasons — cost, trac eability, and effectiveness. killer robots are likely to be extremely cheap, while still maintaining lethality. Some of Experts accepted a certain lethal autono mous weapons, once thoroughly devel oped, will deliver a cost-effective alterna tive to terrorist groups looking to maxi mize damage, AI-powered killer drones are likely to cost little more than a smartphone. killer robots will minimize the human investment required for terrorist attacks. greater degrees of autonomy enable a greater amount of damage to be done by a single person." Artificial intelli gence could make terrorist activity cheaper financially and in terms of human capital, lowering the organiza tional costs required to commit attacks. Therefore, AI encourage algori thm terror.

HOW AI CONTRADICT HUMAN NATURAL LEARNING THROUGH PRESERVING MACHINERY LEARNING

Human learning comes from brining changes through past experiences either directly or shared by other person. Human learning process differs from person to person. Some people having fast learning intellect and some are weak these factors are completely relying on the environment in which one is raised but once the knowledge, information, experience, either good or bad memory is set in human's mind it can't be dynamic or delete for life time. Machine learning is a affiliated by AI and comp uter science mainly focus on the use of data and algorithm. Machine learning leads technical invention, innovation. Machine learning is easy to change the learning method by selecting a different automation algorithm. Human procra stination is increase when people dep end on completely machine learning. for instance, an assignment given by teacher to student with ten-day duration of submission. As there are number of educational application which provide all data information related to assignment. Here the critical fact is that student does not use his own intellect even a percent by writing assignment which can improve his reading, writing, research, logical and critical skill. This is how AI is control human brain and the confidence and dependance of human beings on such technologies making humans indolent. Machine learning is prediction based learning If a person wants to collect updated information it is impossible to figure out as data or information is backed-dated fixed in machines. Outc ome of machine learning conceivably incorrect due to informat ion in mach ine based on prior set algorithm. The biggest disadvantage of machine learni ng is that interpreted data that we get from the cannot be hundred percent accurate. It will have definite degree of inaccuracy. For getting high accuracy information, then algorithm should be developed so that they give reliable result. Development of algorithm requires massive and expensive resources and high- quality expertise. Through intelligence or mental capacity, humans acquire the cognitive abilities to acquire a knowl edge, form of concepts, under stand, acknowledge, apply logic and reason, including the capacities to recognize and concede patterns, design, plan, innovate, solve problems, make decision, preserve information, and use language to communicate. Human intellect learning is itself humans fundamental right which is encroaching by machine learni ng as machines learning possess disru ptive feature and provide inaccurate, incorrect, outdated and information based on prediction.

IMPACT ON ECONOMIC AND ITS DOMAINS (MARKET PARTICIPANTS, EMPLOYMENT, TAXATION ETC.)

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As AI technology growing around the clock, it may have a considerable effect on the economy concerning produc tivity, growth, inequality, market power, innovation, and employment. Policy makers could also use AI to create more efficient and equitable policymaking. Quantifying the benefits that AI will bring is difficult both because of the uncertainty of the future evolution of AI. A prominent perception on growth is an economic one that contemplate development in levels of income earning by individuals, businesses or multi-national organizations, countries and regions. Market participation, competition between AI competitors, employment and taxation are those economic agents on which countries economy rely.

MARKET PARTICIPATION

Market participation are those buyers and sellers transacting business in the AI market for an asset or liability. These participants are not related parties, have a reasonable understanding of the asset or liability, are capable of entering into a transaction to buy or sell the AI product, and are motivated to do so. AI has gone from being something esoteric, someth ing really high tech which is only a tech company applied to something that is ubiquitous. Many departments in an organisation are already applying it and many organisations are planning to use AI in their company or organisation. Now marketing is a huge critical part of most organisations AI is a critical aspect for market participants to transact in particular market such as banking, fina ncial, insurance, IT and telecom, retail, manufacturing, public sector, energy and utility, and healthcare, among others. However, what has happened so far is that the influence of AI on marketing has been dealt within a very tactical, piecemeal kind of way. We really don't have an overarching, strategic framework for how AI is impacting marketing and will impact as it becomes more and more useful to organisations. Marketing is a very consumer facing field. Its goal is to better understand the consumer, to better reach the consumer, to create value then appropriate that value. As AI algorithm can analyse consumer demand through analysing vast amount of customer's previous recorded interest of buying patterns and consequences AI provides predic tion of productivity based on backed dated buying record of customers and market demand, it would result high production and miserable sales due to customer trending demand is not meeting and prediction for future trends fails. High investment in productivity by market participants and appear terrible outcome lead worst economy. hereby, AI is not competent to maximize output from its prediction comes from fetch backed- dated data, for market particip ants. as it's critical for market partici pants of AI working in marketing to really know the extent of AI. The limits of AI but also what AI can do for marketing specifically. For high produ ctivity which generate maximum outco me, it is must as particular understand toward relevant potential link with AI and to make it effective use of new technologies including access to skilled people and business.

AI COMPETITION B/W ITS COMPETITORS

As AI is more developing market, with this new age may come competition between it competitors, for competition policy purpose, any conformation of co-ordination or agreement among competing firms with the aim of lifting higher profits. Competitors is inventing the product which will control human mind. production through AI techn ology is empower machines to gradually dominant human race.

EMPLOYMENT

Businesses provide employment oppor tunities to people and which helps to reduce unemployment and improve the standard of living for individuals and families. The rate of economic growth sets the absolute ceiling within which growth in employment and growth in labour productivity which generate income become reason of economic growth. As if AI is evolving, unfort unate consequences to employ ment is likely more task falls into the category of thing such as chauffeurs, truck drivers, and many jobs seem a little bit complex as chef, waiter, a lot of that can be easily automated. Improvingly, algorithmic management is also being used in other atmosphere, namely in retail, manufacturing, warehouses, consultancy, marketing, banking, call-centers, hotels and among journalists, lawyers, and the police and government administration. We will have automated stores, restaurants, vehicles, robotics tools to operate a factory when making a physical product and all together in 15 years that going to displace about 40 % of job in the world which would lead Unemployment & the Job Market destruction and entire job industries could disappear. When unemployment would arise due to sort of job which will impair the people's standard of living, increase poverty and hunger and with this death rate also increase because each individual would not capable to

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control robots or capable to acquire automation drive skill.

DOWNSIDE OF AI TO EMPLOYEES

Potential downside of AI is that it could exacerbate existing economic inequality as the benefits of AI technology disproportionately accrue to those who are already wealthy and have access to the best resources. Job Security Risks: Another potential downside of AI is that it could create new security risks as malicious actors begin to use AI technology for malicious purposes. AI is that it could raise ethical concerns as AI technology increasingly begins to impact our human lives in ways that we may not be comfortable with."

TAXATION & AI

AI's role in taxation is like a software that can automatically adapt to the input of different content and make judgme nts without specific instructions. While AI robots acting as tax accountants is currently believed to be unlikely, they can perform various roles, such as assisting tax auditors in detecting errors, classifying accounts and transa ctions, assessing tax audit risks, and increasingly propose favourable tax strategies within the framework of complex global laws. There are many prospects for applying AI in taxation. With compilation of aforesaid fact, result automation tax collection replaces various jobs comes under tax collection and it triggered widespread unemployment with result that less tax revenue will accrue to the government and with that government will fail to fight with contingent based situation and pandemic and hit count ries economic stability result worst econ omy.

AI & ENVIRONMENTAL ASPECTS

AI and the broader internet and communications industry have increasi ngly come under fire for using exorbita nt amounts of energy. Take data proces sing, for example. The supercom puters forefront as AI programs are electrified by the public electricity grid and encour aged by back up diesel-powered genera tors. Training a sole AI system can discharge over two lack fifty thousand of carbon dioxide. In fact, the execution of AI technology across all industries and sectors generate carbon dioxide outflow at a level comparable to the avia tion industry. These additional emis sions or discharge disproport ionately influence historically dimini shed com munities who often reside in steadily polluted regions and are more directly affected by the health menace of pollution. The implementing of robot ics use replace human-powered assign ment, improve workplace produc tivity and facilitate man-robot cooper ation are some of the compo nent that boost electricity usage over time. automation replacing human workers include the usage of robots for vacuum cleaners, floor sweepers, delivery vehicles, and forklifts, whereas examples of human-machine co-operation are one's own robot assistants with emotional intellige nce, surgical robots for invasive surger ies in hospitals. While some of these robotic applications may be frugal in the way they use electricity, using them increase intensely on an every single day increases the average daily power usage on average. In continuing, lifting consumption accompanied to planned obsolescence and depletion of natural resources. Planned obsolescence entail the invention of products that become obsolete fast and need to be replaced. This not only speeds up resource usage and depletion but also piles on more destruction or waste products on a regular basis. The global progress in terms of robotic advancement in individual countries is rather lopsided. So, a handful of countries, such as China, the US, South Korea and Japan, use more than half of the global stock of robots. Rich and advanced countries automate their industries, leaving poor countries playing catch up. This inequa lity leaves the have-nots vulner able to deficient effect of climate change-sugge stive calamity. Inequality is a significant operator of environmental surroun din gs destruction and it is one that is, directly or indirectly, origin by the increase sudden in automation and robotics usage by the richest countries. Resolving such issues requires countries to invest in the development of green robotics-based technologies for autom ation to reduce resource consu mption. Implementing green robotics can be a challenge for businesses. Overcoming inequality is harder still, with the need for world bodies and governments to work in unison over several years to fix the widespread issue. A firm decision to do or not to do with respect of such dilemma pledges to be the answer to many of the negative environmental influence of AI.

CONCLUSION

Artificial Intelligence is certainly a gravitate and maturation technology. Due to its high performance and as if it is making human life easier other side is put them in danger, it is becoming a highly demanded technology among industries. However, there are also some challenges and problems with AI. Many people world-wide terrified of it as a hazardous technology, because they have perception that if it overtakes

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humans, it will be malicious or dangerous for humanity. However, consequently, we can compile that it is a feasible technology until AI is not injurious to human or other aspect which is connected to human, but each technique and system must be utilized in a limited and restricted way in order to be used effectually and successfully, without any harm. The following precaution must be taken to prevent danger coming from AI that is Development of Instruction for AI Safety and Security, each industry, company or other form of organization which embrace AI must ensure that AI systems are utilized in a right way and for the right reasons, and for accompl ishment ethical execution of AI in companies can enforce some guidelines and restriction regarding the implement of AI systems and enforce proper surveillance, whether the guidelines is implementing or not. Another precaut ion can be 'Manage ment of Data Integrity', as data can be used by unauthorized access and to commit malicious attack which can violate privacy and harm others. managing data integrity and implem enting risk mitiga tion techniques is essential in autono mous systems to prevent malicious cyberattacks. therefore, businesses must first carefully manage the integrity of the data and should implement techni ques and processes to protect, detect, correct and mitigate risks attach upcom ing threat. 'Validation and Verification' is significant precaution considering measurement of reliability and predicta bility of AI systems for forbidden imminent threat emerge from AI. For achieving protection and robustness, all AI systems should be authenticated and verified, validated and tested, both probabilistically and logically, accurately before they are deployed. 'Verification' consists of techniques to confirm that a system can satisfactorily perform its tasks. As AI systems operate in partially unknown environments and act upon ambiguous information, it is necessary to imple ment new verification techniq ues. 'Validation' is testimonial action of making or declaring Al legally or officially acceptable as AI system facilit ate accurate procedural logic, analytics, reasoning, and sense-making with uniq ue human qualities such as empathy, value judgement and aesthetic. thus confirm that an AI system does not have unwanted behaviour AI system can safely implement and if it does have unwanted behaviour, to define those unwanted behaviour, organizations must need to know pros and cons in a particular situation to deal with such unwanted behaviour of AI system. 'National and International Body can play crucial role and take feasible action they deemed fit to safeguard Human Basic Right if encroaching by high technology'.

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Agriculture, Artificial Intelligence And Food Security: A Case Study Of The United States And India's Agriculture Sector

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ABSTRACT:

This paper provides an overview of the use of Artificial Intelligence such as predictive maintenance of crops, IoT and ICT systems and its impact on the agriculture sector in the United States of America and in India. Through the paper, we see how the increased use of Artificial Intelligence technologies have contributed to the growth in agriculture positively and has thus ensured food security. Drawing upon parallels from both the Indian and the U.S. agriculture economy, the impact of Artificial Intelligence on food security is analysed and its implications are discussed. In this paper, we also reiterate problems that are unique to the Indian agrarian sector and transpose the learnings from to maximise the use of Artificial Intelligence in Agriculture to achieve Food Security in both countries.

INTRODUCTION

The Universal Declaration of Human Rights (1948) recognizes the Right to Food as a Basic Human Right. This is also modeled in the International Cove nant on Economic, Social and Cultural Rights (ICESCR) as a right to an adequate standard of living. In today's day and age where we face problems like increasing population, climate change, soil degradation, pest and disease outbreaks, crop losses etc. food security is threated. Thus, we need to find solutions to these problems, so our food security remains intact and the Human Right to food for all is honoured. Following COVID-19, data from the World Food Programme has predicted that the number of people experiencing acute hunger will near a quarter billion (2500 lakh people approx..). We thus need to build resilient food systems and work towards global nutrition. In a recent summit: AI for Good Global Summit 2020, Emmanuel Faber, the chairman of Danone, a billion-dollar food company emphas ised the need for agricultural biodiversity by empowering food producers locally by using Artificial Intelligence. The United Nations Climate Action Summit 2019 also aims to reintroduce biodiversity in agriculture by using AI as a leverage. India's inspiration from the above international dialogue has led to the creation of institutions such as the Artificial Intelligence for Agriculture Innovation (AI4AI) initiative and collaborated with the Ministry of Agriculture, the National Institution for Transforming India (NITI) Aayog and the Ministry of Electronics aims to transform the agriculture sector in India using AI. The government has partne red with stakeholders such as academic and research institution, agri-tech indust ries, and startups to develop an evidence based, consensus driven frame work to gather better data to address issues within the agriculture industry. We will learn more about this in the paper as we proceed. On the other hand, as India is gearing towards the use of AI cautiou sly, the United States with its 363 million ha i.e., 37% of total land area under agriculture production with more than 2 million open field farms in operation has revolutionized agriculture using advance AI capabilities such as ICT and IoT technologies, remote sensing, satellite imaging, drones, and precision technologies to monitor crops and soil. The information gathered from these systems support production and management. Robots are carrying out labour-intensive jobs, such harvesting crops quickly and in greater quantities than conventional human labourers. AI technologies are also being used to accurately detect infections, allergens, chemicals, and pollutants in foods, plant and animal production systems, water, and soil. USA also ranks first in the Global Innovation Index among 132 countries, and this is an indicator of being adapting to AI in all sectors promptly and effectively. We will explore the learnings as well as drawb acks from the above country in the following sections.

EVOLUTION OF THE INDIAN AGRICULTURE SECTOR

India has always been an abundant producer of crops, fruits, and vegetables since ancient times. It is due to this, among other reasons that the British colonized our country. In the years immediately after independence, India has made enormous progress towards achieving food security. Food grain production in India has more than quadrupled while the population tripled. The amount of food grains that are

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available per person has significantly increased especially after the green revolution. In the 1970s and 1980s, the irrigated areas, which made up around one-third of the harvested crop area, mostly benefited from the long-term effects of the enhanced seeds and new technology. In the 1980s, there was a transition in the Indian agriculture policy to "evolution of a production pattern in line with the demand pattern" which resulted in a shift in emphasis towards other agricultural commodities, such as oilseed, fruit, and vegetables. The 1990s saw the liberalization of India's Economy which resulted in agricultural products being catering to exports and a larger international consumer base. These changes came with its own set of problems. While addressing the diverse food needs of an expanding population, farmers were pressurized to start implementing new techniques and technology to tackle problems such as poor irrigational and infrastructural facilities, inefficient farming practices, soil degradation and low crop yields.. In the advent of the late 2000s with the booming of the Information Technology industry, the Indian government also began making changes and integrating technology with agriculture. Most recently, the India government has created institutions such as national agriculture market (e-NAM), clean energy programme for renewable power facilities and audio-visual communication apps for advising farmers in initiatives like Kisan Call Centres and e-SAGU using the internet. As the world is already moving forward to Industrial Revolution 5.0, AI looks like bringing about food security and a promising future. There are no legislations on AI as such in India today, but a National Programme on AI was formulated in the budget for the 2018–2019 fiscal year with the goal of directing research and development in the new and emerging technologies. Considering this NITI Aayog has developed strategies for the creation of a national plan with the cooperation of experts and stakeholders to develop a proof of concept of the impleme ntation of AI in various sectors-agriculture being one of them. As we have now traced the trajectory of India, will now explore the US agrarian system and its relationship with technological innovation.

TOWARDS AN A.I. DRIVEN UNITED STATES AGRICULTURE SYSTEM

In the U.S., agricultural policies are called farm bills, which generally follow a 5-year legislative cycle. The most recent of these Farm Bills still being implemented is the Agricultural Improv ement Act of 2018. It governs areas such as crop insurance, conservation on agricultural lands, agricultural trade (including foreign food assistance), nutrition (primarily domestic food assistance), farm credit, rural economic development, agricultural research, State and private forestry, bioenergy, and horticulture and organic agricult ure. Law makers as the previous legislation is coming to an end are laying out priorities for their next farm bill 2023. Artificial Intelligence is one of the major priorities. The U.S. Department of Agriculture (USDA) is involving farmers, scientists, educators in various AI projects as a part of the bill to benefit from artificial intelligence by fostering innovation, creating economic opportu nity, supporting the success of rural America, and encouraging more effecti ve and profitable agricultural produc tion. The NIFA has launched a data science initiative, Food and Agriculture Cyber informatics and Tools, to expand and fasten a diverse project related to AI programs. These programs represent a multitude of uses in agricultural produc tion, sensor development, bioin form atics, ecosystem management, rural co mmunity support, and work force development through education and training at all levels. In this work, artificial intelligence (AI) algorithms are used to help identify plant, animal, and tree species that contribute to pest control and ecosys tem management, as well as robotic solutions that use AI technologies to help with pollination, weeding, pesticide applications, and fruit harvesting. Adaptive groundwater and watershed models are also used to maintain the resilience of agricultural systems. The investments made by NIFA support a wide range of AI-related research, including work in big data, machine learning, autonomous systems, computer vision, and intellig ent decision support systems, as well as socioeconomic and workforce issues related to the rapidly expanding role of AI in American agriculture. Also working with NIFA is the Agricultural Research Service (ARS) which is the U.S. Department of Agriculture's chief sci entific in-house research agency. The ARS is working with businesses to advance the use of AI in monitoring livestock, sorting harvests with robots, analysing irrigation systems, and analysing crop health and pesticide application with UAV technology. These projects include self-propelled apple sorting machines that use algorithms to quality sort the fruit, automated calculations to analyse the foliage composition of crops and then guide the application of pesticides, and aerial monitoring of fungi levels on

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maize and other crops using computer vision and deep learning. The use of AI in the U.S. seems certainly promising, we will go on to take a look at the projects that are implemented in the U.S. and in India.

COMPARATIVE STUDY OF A.I IN INDIAN AND US AGRICULTURE

The aim of using A.I in agriculture is to increase profits, decrease environmental impacts, improve land use productivity, and motivate more young people to work in agriculture. Data Management and Smart Farming Smart farming solutions in U.S. are mostly designed as hardware or software products that can operate independently or in combin ation to provide farm management processes. Technologies like GPS-guid ed tractors, yield monitor, variable rate sprayers for pest control, planters and variable rate fertilizer implements. All these technologies have been widely adopted in the U.S., because these aid in the management of large farms. Currently, in the U.S., smart system products developed by private industry (such as Bayer, CropX, John Deere, Lindsay Corporation, Reinke and Valmont, Industries) are available to farmers on the retail market. The Agricultural Research Service (ARS under the Department of Agriculture) is also developing smart farming solutions for precision irrigation management in collaboration with private industry or with state cooperative extension specia lists. Specific smart system solutions like automation and equip ment control (such as pumps, tractor guidance), optimization of machine operations (e.g., tracking maintenance parameters), or provision of decision support tools for irrigation scheduling, forecasting precipitation, or developing variable rate application maps for fertilizer or irrigation are being used in the U.S Today. Unlike the U.S. In India today, the pressure on increasing productivity in a small parcel of land is high as India does not have large tracks of land like the USA. Precision farming in India so far is used to detect diseases, pests, and malnutrition in the field. An example of this is when AI detects the target weed using sensors and then recommend pesticides and weedicides to be used. Seasonal forecast models are also being developed by A.I. to improve farming accuracy and productivity. This helps farmers make better decisions using technologies to predict future trends. Drone based AI enabled cameras are also used to take pictures in the field to analyse images in real time to identify potential problems and improvements. Yield Management using A.I. Smart farming in the U.S. has the potential to reduce the risk of crop loss and failure due to climate change. Sector growth is envisioned if the ICT system affords data strategies providing intelligent information and services to farmers such as potential buyers for their products and predictions for future demands. In India, Microsoft is currently working with the Telangana government to provide consulting servi ces using machine learning and power business intelligence using Contra Intelligence suit. The project developed AI applications to communicate soil preparation, fertilizers based on soil tests, the dates, seed treatment etc. to predict yield. Gobasco is an artificial intelligence- based platform that offers procurement solutions and yield prediction and optimization for the agriculture sector. The aim is to use artificial intelligence and big data to optimize the Agri-supply-chain. This approach provides farmers and agricu ltural SMEs (Small and Medium enter prises) with a data-rich technology platform and network to grow their profits, thereby creating new opportun ities in rural commerce. The global market for smart agricultural goods was estimated at 6.34 billion USD in 2017; this market is projected to reach 13.50 billion USD by 2023. A.I in Water Management Systems There are additional uses of A.I which are directly not related to agriculture that we could gain from the introduction of ICT in both countries, even though both approaches identify several applications for smart farming. Among these applications are ones for controlling and monitoring and providing water supply projections, interstate river systems, water storage facilities, water conveya nce systems, water quality at the waters hed and farm level, and water quality measurements are all included in the USGS report from 2018 (USGS). Gen eral additive models and support vector machines can be used to get accurate month estimates of the water level in the rivers along with data for alluvial aquifer. In India, numerous attempts are being made to use AI-based solutions for water assessment. For instance, to pred ict the groundwater table in agricultural land and to improve management and use of groundwater. Like this, agtech companies are using sensors, remote sensing, and AI to schedule irrigation in a way that is more intelligent. This is an important step for India, as predo minantly farmers rely on monsoon to feed their crops. Although, both countries have understood the need for using A.I. to leverage and find solution in irrigating their farms, India is at a disadvantage as most farmers are not technology savvy or literate and many

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of these services are neither scalable nor affordable for them. Tackling Labour Changes: In the U.S harvest robots such as six axis robots are intelligent and self-sufficient bots who employ sensors and cameras to detect when the crops are ready to be harvested. Once they receive the sensory input, they carefully harvest the crops without tampering with the finished product using robotic arms or other instruments. Similar technology is used to intelligently remove weeds, plant seeds and spray fertilizers. In India the migration of labour is a huge problem unlike in the U.S. where large tracts of land are available to farmers. Therefore, India is also leveraging the labour challenge posed by using robots to harvest crops. These bots are faster and locate and remove crops, weeds etc more accurately. Research has also shown that the operation cost of using these technologies is relatively cheaper than per head labour costs. AgriTech Companies Innovating in A.I for Agriculture: Agriculture technology (Agri-tech) is swiftly emerging as a significant field of innovation in the United States and in India in 2023. Agri-tech companies are working hard to develop new innovations that will improve the skill, effectiveness, and manageability of agricultural practises. CropX, a leading provider of cutting-edge sensing and analytics-powered smart solutions for professional farm ers, was established in 2017. CropX choses ranchers with ongoing experie nces in soil environment and harvest conditions, empowering them to adva nce their water system choices and increase in yields. Indigo AG provide them with data-driven insights and solutions for increasing soil health, decreasing inputs, increasing crop performance, and making better farming decisions. Granular focuses on developing cutting-edge tools that assist businesses in managing their operations more effectively. Granular Platform, their most popular product, is a platfo rm that can handle all a company's data and processes from a single loc ation. Their area of expertise in Farmlogs- a startup aids farmers in managing their farms, maximising agricultural produc tion, and maximising earnings. Their product line includes FarmLogs Crop Manager, FarmLogs Field Maps, FarmLogs Weather, and FarmLogs Soil. Blue River Technology, since its establishment in 2011, the organisation has grown to become a pioneer in autonomous cultivation thanks to its innovative arrangements. Blue River's technology helps farmers cut labour costs and boost productivity by autom ating crucial crop management proce sses including weed detection, fertiliser application, and crop harve sting. In India, startups such as Prospera which uses images from air and land/water sensors to predict and analyse farm data for optimization, Jivabhumi which is a "smart agriculture marketplace "are revolutionizing agri tech today. Harvest CROO Robotics which is a robotic harvesting system which predominantly harvests fruits by identifying the ripe ones over unripe is contributing positively. Soilsens Techn ologies Pvt. Ltd, a start-up incubated at Indian Insti tute of Technology Bombay (IITB), Mumbai with support from the Ministry of Department of Science and Techno logy (DST) and Ministry of Electronics and Information Technolog y works on sensor based technology to prevent over irrigation and water consumption. Microsoft India and the International Crops Research Institute for Semi-Arid Tropics (ICRISAT) have created a sowing application for farmers utilising AI in conjunction with a customised village advising dashboard for Andhra Pradesh. According to weather, soil, and other variables, the sowing app gives farmers advice on when to plant crops. These are among the most well-known Agri Tech startups in both countries that use A.I. to leverage problems in agriculture.

FOOD SECURITY IN INDIA AND U.S. AFTER USING A.I IN AGRICULTURE

According to FAO (2008) there are four pillars to food security, the first is availability, second access, third - utilization, and lastly stability. The Use of AI technologies are certainly guaranteeing the availability and access to food crops and produce. This transgresses to even the farming of livestock and fisheries. The challenge is to utilize food in a sustainable way so that it guarantees stability in the long run. In the USA, the total amount spent on AI in the agriculture sector is anticipated to increase from $1 billion this year to $4 billion by 2026. AI technology is enhancing farmer's lives because there are so many advantages that AI may provide to the agricultural sector in terms of availability and access of food crops and the people who work in it. In the most recent year, the use of AI technologies in the United States reached 81%, i.e., up by 33 percentage points since 2018. It will keep increasing in the coming years. This growth will ensure food security as more produ ction of food is likely to be the result. In India in the years 2021-2022, the GDP contribution by the agriculture sector went to 19.9% from 17.8% in 2019-20 due to the use of technology and A.I. Even after COVID's effect, the agriculture sector exhibited growth of

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3.4% that year. This was possible only because we used technology to leverage the production of crops and opted by more mechanized and technologically savvy methods. The Indian agri-tech market, presently valued at USD 204 million is expected to undergo expon ential transformation owing to the adop tion of technologies like artificial intelligence and supportive government policies. According to an Industrial survey conducted recently, the favou rable impact of govt initiatives is expected to take the market valuation to US$ 30-35 billion by 2025. India is the world's third-largest recipient of agrite ch funding after the US and Germany and has the third-largest number of agritech start-ups after the US and the UK. In 2020, India received investments worth US$ 329 million from PE/VC firms and registered a staggering CAGR of 53% from 2017 (US$ 91 million) to 2020 (US$ 329 million). With such government support, India's agricultu ral value chain is expected to witness growth across the whole ecosystem in the coming decades. India is about to transform its agriculture using A.I and thereby guaranteeing the kind of food security which was only a variable until the last few decades.

CONCLUSION

According to the United Nations, an estimated 17% of total global food production is wasted, and food that is lost or wasted accounts for 38% of the total energy usage of the global food system. When food is squandered, the resources—land, water, energy, labour, and capital—used to produce it are likewise misused. In addition, the landfilling of food waste and loss produces greenhouse gas emissions that fuel climate change. Today, a person needs 2000 calories on average to live a healthy lifestyle. The world is faced with a huge issue as population growth and increased food production, furthermore climate change puts increasing stress on water resources and agricultural produ ction. To deal with these changes, farmers need to be experts in fertilizers and soil, insecticides specific to different crops, planting and irrigation cycles and weather impacts, among other things. When agriculture itself is dependent on variables, it is necessary to take the help of A.I and its predictive and leveraging technologies to make the process of food production efficient. Using these technologies, farmers must aim to produce more food while using less energy and water. Due to urbanization, immigration issues and a generational shift away from farming, there has been a farm labour shortage which means farmers also need to reduce their reliance on a workforce and use robots to conduct harvesting, weeding, and seeding. A successful crop cycle has never been more dependent on techno logy. A.I can also aid in making better crop inputs, such as- before seeds are sown is the early stages of an agric ultural lifecycle. For instance, an initiative by CRISPR is gene editing to create and altering corn seed genes and has created 32,000 varieties of weather and pest resistant seeds using A.I. There are over 200 AI-based agricultural firms in the United States alone, which indicates that the autonomous farming sector is starting to develop. Self-driving tractors, combine harvesters, robot swarms for crop inspection, and auton omous sprayers are a few exampl es of artificial intelligence in agriculture. Aside from using AI and computer vision to collect data on crops and modify the atmosphere for the best nutrition and flavour, indoor farming businesses like Plenty and AppHarvest are also employing these technologies. Despite of the global population doubling over the last 50 years and a finite supply of agricultural land, the proportion of people without access to sufficient healthy food has dropped significantly. But the challenge is not over: millions of people still lack food access, the threats that climate change pose to farming are intensifying, and two billion more people will be on the planet by 2050. Thus, to ensure long term food security it is a critical for the agriculture industry to draw on emer ging technologies to solve real-world problems — namely building a durable, resilient global food supply and thereby become food secure by fore sting the spirt of Human Rights.

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Consumer Laws And Economics Impact Of Digital Platforms On Consumer Protection Laws And Market Competition

Tripti Mishra* Rishi Kumar Bharti**

ABSTRACT:

Consumer law and economics have become increasingly intertwined in today's global economy, with consumers facing a multitude of challenges and risks in their interactions with businesses. This paper examines the relationship between consumer law and economics and explores the role that economic theory plays in shaping consumer protection laws. The paper provides an overview of consumer protection laws and the economic principles that underlie them, including the theory of consumer sovereignty, market failure, and asymmetric information. It then analyses how economic principles have been applied in consumer protection cases, including product liability, deceptive advertising, and unfair business practices. The paper also discusses the challenges posed by the digital economy and the need for regulatory responses to address emerging risks, such as data breaches, online fraud, and platform monopolies. It argues that policymakers must continue to adapt to changing market conditions and technological advancements to ensure that consumers are adequately protected. Finally, the paper examines the impact of consumer protection laws on businesses, including the costs and benefits of compliance and the role of market competition in incentivizing businesses to act in consumers' interests. It concludes that a balanced approach is needed to protect consumers without unduly burdening businesses, and that the relationship between consumer law and economics will continue to evolve as the economy changes.

Keywords: *Digital Platform, Antitrust Law, Consumer Protection Law, Market Competition, Block Chain Technology*

INTRODUCTION

The emergence of digital platforms has presented challenges for regulators and legal systems in protecting consumers and promoting fair competition. Jurisd ictional issues, speed and scale of trans actions, and disruptive business models have necessitated the develop ment of new or updated laws and regulations. Regulators worldwide are working to adapt to the digital economy and ensure that consumer protection and fair competition are maintained. Moreover, digital platforms have disrupted traditio nal market structures, giving rise to new business models and innovative techno logies that challenge established players. The resulting competition has raised concerns about market power and dominance, leading to regulatory inte rventions aimed at promoting fair comp etition and preventing anti-competitive behaviour. Overall, the impact of digital platforms on consu mer protection laws and market competi tion is a complex and evolving area of law. As the digital economy continues to grow and evolve, it is likely that regulators will continue to adapt their laws and regulations to ensure that consumers are protected and that fair competition is maintained. This legal research paper aims to close this gap by arising following questions:

WHAT ARE THE DIFFERENT TYPES OF DIGITAL PLATFORMS, AND HOW DO THEY AFFECT CONSUMER PROTECTION LAWS AND MARKET COMPETITION?

There are several types of digital platforms, including e-commerce platfo rms, social media platforms, app stores, search engines, and sharing economy platforms. Consumer protection laws aim to protect consumers from unfair practices and ensure they have access to accurate information about products and services. Digital platforms can affect consumer protection laws by providing a platform for businesses to engage in deceptive or fraudulent pract ices, or by not adequately disclosing information about products or services. Digital platforms can also affect market competition by providing a platform for businesses to compete on a global scale, potentially reducing barriers to entry for new businesses. However, some digital platforms may also use their market power to engage in anti-competitive practices, such as giving preferential treatment to their own products or services over those of competitors. In short, the impact of digital platforms on consumer protection laws and market competition depends on a variety of factors, including the type of platform, the nature of the products or services being offered, and the actions of the plat form owners and users. It is important

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for regulators and policyma kers to monitor these factors and take appro priate actions to ensure fair and compe titive markets.

HOW HAVE DIGITAL PLATFORMS CHANGED THE LANDSCAPE OF CONSUMER PROTECTION LAWS AND MARKET COMPETITION?

Digital platforms have significantly changed the landscape of consumer protection laws and market competition in a number of ways. The rise of online marketplaces, social media platforms, and other digital services has presented new challenges for traditional consumer protection laws and antitrust regulat ions. The vast amounts of personal information that consumers share online, there is a growing need for new laws and regulations that address data protection and security. For example, the European Union's General Data Protection Regulation (GDPR) has established new standards for data protection that apply to all companies operating within the EU. Another challenge is the issue of platform liability. Digital platforms are often used by third-party sellers to offer goods and services to consumers, which can create legal issues around product safety, quality, and reliability. Platforms may be held liable for any harm caused by products or services sold on their platform, which has led to a number of high-profile lawsuits and regulatory actions. Digital platforms have also created new forms of market compe tition, particularly in the area of online advertising. The dominance of compan ies like Google and Facebook in the digital advertising market has raised concerns about their ability to mani pulate advertising prices and control access to advertising data. To address these challenges, governments around the world are implementing new laws and regulations that are designed to protect consumers and promote fair competition.

WHAT ARE THE MAIN CHALLENGES POSED BY DIGITAL PLATFORMS TO CONSUMER PROTECTION LAWS AND MARKET COMPETITION, AND HOW CAN THEY BE ADDRESSED?

The emergence of digital platforms has posed significant challenges to cons umer protection laws and market comp etition. The following are some of the main challenges and potential solutions that can be addressed through legal means: Lack of transparency: Digital platforms often use complex algorithms and data analytics to personalize serv ices and products for individual consu mers. However, this can also lead to lack of transparency in terms of how consu mer data is used and how pricing decisions are made. To address this, legal regulations can require platforms to disclose their algorithms and provide transparency reports to regulatory bodies. Monopolistic behaviour: Digital platforms can have significant market power due to network effects, econom ies of scale, and access to large amounts of consumer data This can lead to monopolistic behaviour, such as exclus ion of competitors or exploit ation of consumers. To prevent this, antitrust laws can be enforced to pro mote competition and prevent abuse of market power. Inadequate consumer protection: Digital platforms can also pose challenges in terms of protecting consumer rights, such as privacy, security, and fair treatment. Legal regulations can be put in place to ensure that platforms comply with data protect ion laws, such as the General Data Protection Regulation (GDPR) in the European Union, and provide clear and transparent terms of service. Cross-border challenges: Digital platforms operate globally and often across borders, which can make it difficult to enforce legal regulations and consumer protection laws. To address this, internat ional cooperation and standar dization of legal frameworks can be established, such as through the OECD Digital Economy Ministerial Meeting and the Global Privacy Enforcement Network (GPEN).

WHAT ARE THE KEY BENEFITS AND DRAWBACKS OF DIGITAL PLATFORMS FOR CONSUMERS, AND HOW DO THEY IMPACT MARKET COMPETITION?

Digital platforms have revolutionized the way consumers interact with busin esses and products, and have had a significant impact on market compet ition. However, there are both benefits and drawbacks to the use of digital platforms for consumers. Some Bene fits are written below: Convenience: Digital platforms allow consumers to easily access a wide range of products and services from the comfort of their own homes, without having to phy sically visit a store or location. Price transparency: Digital platforms often offer price comparison tools, allowing consumers to easily compare pricesa cross different sellers and make inform ed purchasing decisions. Incre ased competition: Digital platforms have low ered the barriers to entry for businesses, making it easier for small and new businesses to compete with larger, established companies.

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SOME DRAWBACKS ARE WRITTEN BELOW:

Privacy in-danger: These Platforms take and store a bigger amounts of data about their many users, which may be used for some targeted ads or can sold to someone like third-party companies. Limited choice: Digital platforms may prioritize certain sellers or products over others, potentially limiting consumer choice and reducing competition. Lack of transparency: Digital platforms may use complex algorithms to determine which products or sellers are displayed to consumers, making it difficult for consumers to understand how the platform is making these decisions.

BACKGROUND

Consumer protection laws have been an essential component of India's legal system for several decades. The Indian Consumer Protection Act was introd uced in 1986 with the aim of safegu arding the interests of consumers and offering them effective legal remedies in case of disputes with suppliers of goods and services. The Act aims to promote fair competition and prevent consumers from being exploited by dishonest traders. In recent times, digital platforms have dramatically transformed the cons umer protection and market comp etition landscape in India. These platfor ms have brought about new business models and forms of competition, and have changed the way consumers intera ct with businesses. However, the rapid growth of these platforms has also created new challenges for consumer protection and competition regulation. Digital platforms refer to online interme diaries that facilitate transa ctions betwe en consumers and busine sses. These platforms operate in various sectors, such as e-commerce, ride-sharing, food delivery, and online advertising. Some of the most popular digital platforms in India include Amazon, Flipkart, Ola, and Swiggy. The primary challenge posed by digital platforms is the issue of market concentration. In many sectors, a few dominant players have emerged, which can lead to reduced competition and higher prices for consumers. This has led to calls for greater regulation of digital platforms to protect consumers and ensure a level playing field for businesses. In recent years, the Indian government has taken steps to address these concerns. In 2018, the governm ent introduced new e-commerce rules that require online marketplaces to treat all vendors equally and to refrain from offering discounts or cashbacks that discriminate among vendors. These rules also require platforms to disclose the country of origin of products and ensure that all sellers on the platform comply with Indian laws. The Compe tition Commission of India (CCI) has also been active in investi gating allegati ons of anti-competitive behaviour by digital platforms. In 2018, the CCI launc hed an investigation into allegations of abuse of market power by Google in the online advertising market. In 2020, the CCI also initiated a probe into Amazon and Flipkart over allegations of prefer ential treatment of certain sellers on their platforms. Furthermore, the Indian legal system has been adapting to the challenges posed by digital platfor ms. In 2018, the Supreme Court of India ruled that online platforms could be held liable for the sale of counterfeit goods on their platforms. This decision was a significa nt develop ment in Indian consumer protection law, as it clarified the responsibility of online marketp laces for the goods sold on their platforms.

IMPACT ON MARKET COMPETITION: AN ANALYSIS

The use of digital platforms has both increased and decreased competition in various ways. On one hand, digital platforms have lowered barriers to entry for small businesses, allowing them to compete with larger, established compa nies. On the other hand, digital platforms may prioritize certain sellers or products over others, potentially limiting competition and consumer choice. Additionally, the collection and use of consumer data by digital platfor ms can give some companies an unfair advantage over others. As a result, there has been increasing scrutiny and regulati on of digital platforms to ensure fair competition and protect consumer interests. The following questions are raised by this research paper with the aim of figuring out the overall scenario.

WHAT ROLE DO REGULATORY BODIES PLAY IN ENSURING THAT DIGITAL PLATFORMS ADHERE TO CONSUMER PROTECTION LAWS AND PROMOTE MARKET COMPETITION?

Regulatory bodies play a crucial role in ensuring that digital platforms adhere to consumer protection laws and promote market competition. In many countries, these regulatory bodies are responsible for enforcing laws that protect cons umers from unfair business practices, such as false advertising, price fixing, and monopolistic behaviour. In order to achieve these goals, regulatory bodies have a number of tools at their disposal. They can investigate complaints from consumers or competitors, issue fines or other penalties for violations of consu mer protection laws, and require compa nies to make changes to their practices in

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order to comply with the law. In addition, regulatory bodies may also promote market competition by monit oring and regulating mergers and acquisitions, as well as by setting rules and standards for the behaviour of companies operating in the market. This can help to prevent monopolies from forming and ensure that consumers have a range of choices when it comes to purchasing goods and services. Overall, regulatory bodies play a critical role in promoting fair competition and protecting consumers in the digital economy. Through their enforcement of consumer protection laws and regulation of market behaviour, these bodies can help to ensure that digital platforms operate in a way that benefits both consumers and businesses.

HOW DO DIFFERENT COUNTRIES REGULATE DIGITAL PLATFORMS IN TERMS OF CONSUMER PROTECTION LAWS AND MARKET COMPETITION, AND WHAT CAN BE LEARNED FROM THESE APPROACHES?

Different countries have different legal frameworks and approaches to regulat ing digital platforms in terms of consu mer protection laws and market comp etition. Here are some examples of how various countries regulate digital platfor ms: United States: In the United States, digital platforms are regulated by a combination of federal and state laws. The Federal Trade Commission (FTC) is responsible for enforcing federal consumer protection laws, such as the Federal Trade Commission Act, which prohibits unfair or deceptive practices in commerce. The Antitrust Division of the Department of Justice is respon sible for enforcing antitrust laws, such as the Sherman Act, which prohibits anticompetitive behaviour, such as monopolization and price-fixing. Europ ean Union: In the European Union, digital platforms are regulated by a combination of EU and national laws. The General Data Protection Regula tion (GDPR) is a key EU regulation that governs data protection and privacy. The EU also has competition laws, such as Articles 101 and 102 of the Treaty on the Functioning of the European Union, which prohibit anticompetitive behaviour. China: In China, digital platforms are regulated by a combina tion of laws and regulations issued by various government agencies. The Cybersecurity Law, which went into effect in 2017, governs data privacy and security. China also has competition laws, such as the Anti-Monopoly Law, which prohibits anticompetitive behav iour, such as abuse of dominance and price-fixing. Australia: In Australia, digital platforms are regulated by a combination of federal and state laws. The Australian Competition and Consu mer Commission (ACCC) is responsible for enforcing competition laws, such as the Competition and Consumer Act, which prohibits antic ompetitive beha viour. The Privacy Act governs data privacy and security. What can be learned from these approaches? One key takeaway is that different countries have different legal frameworks and approaches to regulat ing digital plat forms. For example, the EU has taken a more aggressive stance on data privacy and antitrust issues than the US. China has focused on regulating digital platforms through a combination of cybersecurity and antitrust laws. These different approaches can inform policy makers and regulators in other countries as they consider how to regulate digital platforms in their own jurisdictions.

HOW DO DIGITAL PLATFORMS IMPACT TRADITIONAL BRICK-AND-MORTAR BUSINESSES, AND WHAT ARE THE IMPLICATIONS FOR CONSUMER PROTECTION LAWS AND MARKET COMPETITION?

Digital platforms have a significant impact on traditional brick-and-mortar businesses, and there are several legal implications for consumer protection laws and market competition. Firstly, digital platforms can provide consu mers with increased convenience, acce ss to a wider range of products, and low er prices. This can lead to a shift in consumer behaviour, with more cons umers choosing to shop online rather than visiting physical stores. As a result, traditional brick-and-mortar businesses may experience a decline in sales and revenue, which can have a significant impact on their profitability and viabil ity. Secondly, digital platforms can crea te a power imbalance between platform providers and traditional brick-and-mortar businesses. Platform providers may have access to consumer data and analytics, giving them an advantage in targeting and marketing products to consumers. In addition, platform provi ders may charge fees or commiss ions for using their services, which can increase the cost of doing business for traditional brick-and-mortar businesses. In terms of consumer protection laws, digital platforms may need to comply with various regulations, such as data protection laws and consumer protecti on laws. For example, platforms may be required to provide clear and accurate information about products and servi ces, as well as ensuring that consumers are not misled or deceived by advertis ing or marketing practices. Additionally,

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platforms may be required to have processes in place to handle complaints and disputes, and to provide adequate protection for consumers' personal data. Regarding market competition, digital platforms may be subject to antitrust laws and regulations, particula rly if they are dominant players in a particular market. Antitrust laws aim to promote fair competition and prevent monopolies or anti-competitive behavi our, such as price-fixing or collusion. This may involve regulatory oversight or enforcement action to ensure that digital platforms do not engage in practices that harm market competition or lead to consumer harm.

WHAT ARE SOME OF THE ETHICAL CONSIDERATIONS ASSOCIATED WITH THE USE OF DIGITAL PLATFORMS IN TERMS OF CONSUMER PROTECTION LAWS AND MARKET COMPETITION?

The use of digital platforms raises various ethical considerations related to consumer protection laws and market competition. Some of these consid erations include: Fair Competi tion: Digital platforms must comply with competition laws and regulations to ensure that they do not engage in anti-competitive practices such as price fixing, market allocation, or monopo lization. Privacy: Digital platforms must protect consumer data and privacy. Companies must be transparent in their data collection and usage practices, and consumers must be able to control their data and make informed decisions about its use. Accuracy of Information: Digit al platforms must provide accurate and truthful information to consumers. Companies must ensure that their advertising and marketing practices are not misleading or deceptive, and they must be held accountable for any false or misleading claims. Customer Service: Digital platforms must provide high-quality customer service. Companies must ensure that consumers have access to accurate information about products and services, and they must address any complaints or issues in a timely and professional manner. Accessibility: Digital platforms must ensure that their services are accessible to all consumers, regardless of their age, race, gender, or other factors. Companies must avoid discriminatory practices and ensure that their services are available to everyone. Intellectual Property: Digital platforms must respect intellectual property rights. Companies must ensure that they are not infringing on the intellectual property rights of others, and they must take appropriate measures to protect their own intellectual property. Overall, companies must balance the benefits of digital platforms with their ethical and legal responsibilities to protect consu mers and promote fair compet ition in the market. Failure to do so can result in legal action, reputational damage, and loss of consumer trust.

WHAT IMPACT DO EMERGING TECHNOLOGIES SUCH AS BLOCK CHAIN AND ARTIFICIAL INTELLIGENCE HAVE ON DIGITAL PLATFORMS, AND HOW DO THEY AFFECT CONSUMER PROTECTION LAWS AND MARKET COMPETITION?

Emerging technologies such as block chain and artificial intelligence (AI) are transforming the landscape of digital platforms, and their impact on consu mer protection laws and market competi tion is a topic of increasing interest among legal professionals. Block chain technology, which provides a secure and transparent way of recording transact ions, has the potential to revolutionize the way digital platfor ms operate. It can enable decentralized platforms that eliminate the need for intermediaries, such as banks, in transactions between users. This could increase competition by reducing barriers to entry and lowering transaction costs for consmers. However, block chain techno logy also presents new challenges for consumer protection laws, such as issues related to security, privacy, and data protection. AI is also transforming digital platforms, with applications such as chatbots, personal assistants, and recommen dation systems becoming increasingly comm on. AI can enhance the user experience by providing personalized services and recommendations. Howev er, it also raises concerns about consum er privacy, as AI systems are often designed to collect and analyse large amounts of user data. From a legal perspective, emerging technologies such as block chain and AI require a careful balance between innovation and regulation. Consumer protection laws must evolve to keep pace with technolo gical advancements, ensuring that consu mers are adequately protected while also promoting innovation and competition. This may involve creating new regula tory frameworks or adapting existing laws to account for the unique challe nges posed by these technologies.

HOW CAN DIGITAL PLATFORMS BE DESIGNED TO BETTER PROMOTE CONSUMER PROTECTION AND MARKET COMPETITION, AND WHAT BEST PRACTICES SHOULD BE FOLLOWED IN THIS REGARD?

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Digital platforms can be designed to promote consumer protection and market competition by implementing the following best practices: Transpa rency: Digital platforms should be transparent about their policies, terms of service, and fees. Consumers should be able to easily access and understand this information. Data privacy: Digital platforms should respect consumer privacy and protect their personal data. They should clearly communicate their data collection and use policies and obtain consumer consent. Fair competi tion: Digital platforms should promote fair competition among businesses by avoiding practices that may unfairly favour certain businesses over others. This includes avoiding monopolistic practices, discriminatory pricing, or any other activity that may limit consumer choice. Customer service: Digital platforms should provide high-quality customer service to ensure consumers can effectively access the services they need. This includes responding to consumer complaints and addressing issues in a timely manner. Collaboration with regulators: Digital platforms should collaborate with regulators and comply with applicable laws and regulations to ensure they are providing services that are safe and fair for consumers. Independent dispute resolution: Digital platforms should provide a means for independent dispute resolution, allowing consumers to resolve any issues or disputes that arise with the platform or other parties using the platform. In summary, digital platforms should prioritize transpare ncy, data privacy, fair competi tion, customer service, collaboration with regulators, and independent dispute resolution to promote consumer protection and market competition. These best practices can be impleme nted in a legal way by complying with relevant laws and regulations and seeki ng guidance from legal professionals where necessary.

RELEVANT LAWS RELATED TO IMPACT OF DIGITAL PLATFORMS ON CONSUMER PROTECTION LAWS AND MARKET COMPETITION

There are several laws that are relevant to the impact of digital platforms on consumer protection laws and market competition. Some of these laws inclu de: Antitrust laws: These laws are designed to promote fair competition in the marketplace and prevent mono polies from forming. In the digital age, antitrust laws are being applied to tech giants such as Google, Facebook, and Amazon to ensure that they are not engaging in anticompetitive practices that harm consumers. Consumer prote ction laws: These laws are desig ned to protect consumers from fraudul ent, deceptive, or unfair business practices. In the digital age, consumer protection laws are being applied to digital platfor ms to ensure that consumers are not being misled or harmed by the practices of these platforms. Data protection laws: These laws are designed to protect the privacy and security of consumers' personal information. In the digital age, data protection laws are being applied to digital platforms to ensure that they are collecting, using, and sharing consumer data in a transparent and ethical manner. Intellectual property laws: These laws are designed to protect the rights of creators and innovators. In the digital age, intellectual property laws are being applied to digital platforms to ensure that they are not infringing on the intellectual property rights of others. Cybersecurity laws: These laws are designed to protect against cyber threats such as hacking, malware, and identity theft. In the digital age, cybersecurity laws are being applied to digital platfor ms to ensure that they are taking appropriate measures to protect cons umers' personal and financial inform ation.

RELEVANT CASE LAWS RELATED TO IMPACT OF DIGITAL PLATFORMS ON CONSUMER PROTECTION LAWS AND MARKET COMPETITION

There have been several recent case laws related to the impact of digital platfor ms on consumer protection laws and market competition. Here are a few examples: Google LLC v. Competition Commission of India (2021): In this case, the Competition Commission of India (CCI) found that Google abused its dominant position in the market for online general web search and search advertising services. The CCI imposed a penalty of INR 135.86 crores (approx imately USD 18.5 million) on Google for infringing competition laws in India. Facebook, Inc. v. Duguid (2021): In this case, the Supreme Court of the United States (SCOTUS) held that Facebook did not violate the Telephone Consum er Protection Act (TCPA) by sending unsolicited text messages to a user who did not have a Facebook account. The decision has significant implications for the interpretation of the TCPA and may have broader implications for consumer protection laws related to digital platforms. Apple Inc. v. Epic Games, Inc. (2021): In this case, Epic Games, the creator of the popular video game Fortnite, sued Apple over its App Store policies, arguing that Apple's 30%

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commission on in-app purchases and other restrictions on app developers violated antitrust laws. The case is ongoing, but it has significant implica tions for the relationship between digital platforms and app developers. United States v. Google LLC (2020): In this case, the US Department of Justice filed an antitrust lawsuit against Google, alleging that the company had abused its dominant position in the market for search and search advertising. The case is ongoing, but it has significant implications for the regulation of digital platforms and their impact on compe tition. European Commission v. Amazon.com NV (2021): In this case, the European Commission found that Amazon had violated EU competition law by using data from independent sellers on its platform to compete again st them. The Commission imposed a fine of €746 million (approximately USD 887 million) on Amazon for infringing competition laws in the EU. These cases illustrate the growing impo rtance of digital platforms in the regu lation of consumer protection and competition laws, and the challenges that regulators face in adapting to the changing digital landscape.

FUTURE OF IMPACT OF DIGITAL PLATFORMS ON CONSUMER PROTECTION LAWS AND MARKET COMPETITION

The impact of digital platforms on consumer protection laws and market competition is a rapidly evolving area of concern for policymakers and industry participants alike. As digital platforms continue to grow and evolve, their impact on consumer protection laws and market competition is likely to become even more significant. In terms of consumer protection laws, digital platforms are already subject to a variety of regulations aimed at protecting consumers. For example, data privacy laws such as the General Data Protec tion Regulation (GDPR) in Europe and the California Consumer Privacy Act (CCPA) in the United States impose strict requirements on how companies collect and use personal data. Similarly, consumer protection laws such as the Federal Trade Commission Act in the US and the Consumer Protection Act in India require companies to be transpa rent about their products and services, and to refrain from engaging in unfair or deceptive practices. However, as digital platforms continue to expand and diversify their offerings, regulators may need to consider new and innovative approaches to protecting consumers. For example, as digital platforms increasingly act as intermed iaries betwe en consumers and third-party sellers, regulators may need to consider ways to ensure that consumers are adequately protected from fraud ulent or mislead ing sellers. In terms of market competi tion, digital platforms have the potential to both enhance and undermine compe tition. On the one hand, digital platf orms can increase competition by provi ding new channels for sellers to reach consumers, thereby increasing the number of competitors in a given market. On the other hand, digital platforms can also create barriers to entry for new competitors, particularly if they control access to critical data or infrastructure. As digital platforms continue to grow in size and scope, regulators will need to carefully balance the potential benefits of these platforms against the risks they pose to compet ition. This may require regulators to take a more proactive approach to regulating digital platforms, including potentially breaking up dominant platforms or imposing stricter rules around data sharing and interoperability.

CONCLUSION

The impact of digital platforms on consumer protection laws and market competition has been significant. On the one hand, these platforms have provided consumers with greater access to information, increased convenience, and more choices than ever before. On the other hand, concerns have been raised about the market power of these platforms, their ability to control access to information, and their impact on competition in various sectors. One of the most significant ways in which digit al platforms have impacted consumer protection laws is by creating new challenges for regulators. For example, issues such as data privacy, the prote ction of personal information, and the prevention of fraud have become more complex in the digital age. Governments around the world are grappling with these challenges, and new laws and regul ations are being introduced to try and address them. At the same time, the rise of digital platforms has also had a significant impact on market competit ion. While some argue that digital platforms have increased competition by making it easier for new players to enter the market, others contend that they have actually led to increased market concentration and reduced competition. This is particularly true in industries such as online advertising and e-commerce, where a few dominant players have emerged. Overall, it is clear that the impact of digital platforms on consumer protection laws and market competition is complex and multiface ted. While these platforms have brought

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many benefits to consumers, they have also created new challenges for regul ators and raised important questions about competition in the digital age. As such, it is likely that we will continue to see significant debates and regulatory developments in this area for years to come.

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Interplay Of Perceived Diversity Climate And Affective Commitment: Impact On Employee Turnover Intentions

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ABSTRACT:
The present study aims to investigate the effect of perceived diversity climate on employee turnover intentions from a social identity lens view alongside assessing the mediating role of affective commitment between the hypothesized connexion. Current research work uses a structural equation modeling approach to analyze the hypothesized connexion with 302 full-time employees working in the Indian IT industry. Findings indicate that employees who have a favorable view of the diversity climate report lower intention to quit not only directly but also indirectly through affective commitment. The study serves a dual role: it adds up to the literature database by assessing the fundamental mechanism that clarifies the relationship between diversity climate and turnover intentions, as well as it assists managers in their decisions by emphasizing the importance of developing a positive climate for diversity as a means to retain employees.

Keywords: *Perceived diversity Climate, Affective commitment, Turnover intention, Social identity theory, Indian IT Industry*

INTRODUCTION

As a result of globalization, diversity has increased in the modern workforce and has position itself as an indispensable element in organizations. The univer sality of diversity in workplaces cannot be overlooked as its quintes sence has transformed from juridical respon sibility to strategic paramountcy (Kundu and Mor, 2017). Organizations have recognized the importance of having a motivated and diverse workforce to reach milestones at a rapid pace (Sinha and Bhatt, 2020) and as a tactic for optimizing market opportunities (Kaur et al., 2022). These benefits encompass higher productivity, attainable goals, innovation, and creative ideas, enhanced customer service, and the establishment of an engaging work atmosphere (Joubert, 2017). Ironically, the antithesis of diversity is also a reality. Conven tional issues linked with a diversified workforce include employees who are less drawn to or dedicated to the group, lower levels of job satisfaction, inadequate task performance, greater absenteeism, and employee turnover (Kaur et al., 2022; McCallaghan, 2020). Owing to this "doubles-edged" mechanism, researchers have also begun focusing on diversity-related disciplines. Diversity climate, the study of diversity-related perceptions, is one of the signifi cant diversity-related disciplines which alludes to employees' common perspe ctives regarding the HR policies and practices directed at identifying and valuing the differences among indivi duals (Choi, 2013). Pugh et al.,(2008, p. 1422), defined diversity climate as "per ceptions of an organization's diversity-related policies, practices, and proc edures". Diversity climate transpires at the unit level (characterized as collective viewpoints of the members of a group or unit) or at the individual level (engro ssed in the perspective of individual employees). Adhering to prior studies on diversity climate (Kaur et al., 2022; Lee et al., 2020; Madera et al., 2016), the current study kingpins its work at the individual level since driving factors of employee attitude and behavior are not objective social stimuli but rather their viewpoints and interpretation of those social stimuli. The concept of diversity climate has acquired attention as it serves a significant role in optimizing the favorable and positive effects of diversity in the workplace (Cachat-Rosset et al., 2019). Various researchers have documented the association between diversity climate and positive outcomes (Reinwald et al., 2018) little work has been carried out to explore the mechanisms by which diversity climate results in positive outcomes. In congru ence with human resources, several studies have shown that changes in the environment (both internal and extern al) can impact the organizational climate, either directly or indirectly. This can lower the level of job satisfaction, which is correlated to employee commit ment, further leading to employees' desire to quit their jobs, which can ultimately lead to actual turnover. Thus, the study postulate that employee affective commitment account for the underlying mediating mechanism through which diversity climate relates

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to employee turnover intentions to elicit beneficial outcomes. The context of the Indian IT industry, for this study, is incredibly significant. As anticipated by Basu (2001), the IT industry has eventuated as "India's philosopher's stone" leading India to establish a foothold in the global market and positioning itself as a global player to be reckoned with (Gupta et al., 2015). The Indian IT industry is the largest private-sector employer and emboldens a diverse array of human assets (Kundu and Mor, 2017). As asserted by Patrick and Kumar (2012) the industry lays its focus on mitigating prejudices and discrimination in the workplace by stimulating consciousness regarding workplace diversity through various tactics like admitting dissimilarities, recognizing diversity, and valuing fundamental rights. Furthermore, the Indian government has designated the information technology industry as a key priority for the development of the nation and has committed significant resources to expedite its growth (Ilava rasan, 2007). This industry's growth acts as a barometer for other industries. The paper is further structured as follows: the next section discourse regarding the literature review and hypotheses development. The third section outlines the research metho dology, which inclu des the sample and study procedure, followed by the fourth section, which addresses the results and their interpre tation, and finally, the research conclus ions, implications, limitations, and future research directions are discussed.

LITERATURE REVIEW AND HYPOTHESES DEVELOPMENT

Perceived diversity climate Diversity climate is delineated as "employees' perceptions about the extent to which their organization values diversity as evident in the organization's formal structure, informal values, and social integration of underrepresented emplo yees" (Dwertmann et al., 2016, p. 1137). Researchers have broadened this defini tion to incorporate the perception of employees regarding their work enviro nment in light of individual differences. Hofhuis et al., (2016, p. 1) posited a diversity climate as "an organizational climate characterized by openness towa rds and/or appreciation of individual differences". Likewise, Mor Barak et al., (1998, p. 83) refer to diversity climate as "employee behavi ors and attitudes that are grounded in perceptions of the organizational context related to wom en and minorities". Dwertmann et al., (2016) contended that the climate for diversity is perceived from two different viewpoints. The first perspective is alluded to as the "fairness and discrim ination" viewpoint, which emphasizes providing equal opportunities, ensuring fair representation, mitigating discrim ination in workplaces as well as eradi cating social exclusion while the second viewpoint is the "synergy perspective", which is concerned with realizing the possible performance advantages of diversity by encompassing divergent skills, strengths, experiences, and perspe ctives. The two points of view are founded on different theoretical found ations, and therefore, represent two fundamentally divergent (but interc onnected) notions. The synergy perspe ctive is more oriented on how teams or units can maximize organizational efficiency by incorporating different perspectives, experiences, abilities, and talents but has a debilitated analytical footing to anticipate outcomes like employee turnover. As a result, the curre nt study sheds light on the "fairness and discrimination" viewpoint, which emphasizes perceptions of individuals regarding workplace policies, processes, and numerous different cues enabling them to discern whether their organiza tion values or do not value diversity. Turnover intention In a recent review on employee turnover by Hom et al., (2017) employees intending to quit the organization is classified into four categories. The first ones are "enthusi astic leavers", which comprises person nel intending to quit the organization and do so. The second category comprises the "reluctant stayers", which comprises personnel intending to quit the organization but cannot. Employees falling under the third category are known are as "enthusiastic stayers", which comprises personnel intending to stay in the organization and do so. The last ones are the "reluctant leavers", which comprises personnel intending to stay in the organization but cannot. When employees experience disparity and discontent within their work team arrangements, they are more likely to endeavor new employment possibilities. This cogitation can lead to a concrete decision of quitting their employment in the final phase of the thought process. As asserted by Chiu & Frances co (2003), this final phase in the thought process is referred to as turnover intention. Vandenberg and Nelson (1999, p.1315) defined turnover intenti on as "individuals' own estimated probability (subjective) that they are permanently leaving the organization at some point in the near future". Despite the recent accumulation of evidential results demonstrating a disparity between employee turnover intent and actual turnover (Rubenstein et al., 2018), turnover intention is indeed "the strongest single predictor of actual

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voluntary turnover" (Mckay et al., 2007, p. 40). Perceived diversity climate and turnover intention While the Indian IT sector has established a global influence, this emerging sector faces its human resource challenges. One of them is high turnover rates (Lo, 2015). This high employee turnover is one of the most problematic challenges confronting all global organizations, as it is enormously expensive and destructive to the organi zations. Though there are numerous reasons for leaving the organizations, one of them is the lack of diversity management. Indian IT industry is the largest private-sector employer and emboldens a diverse array of human assets (Kundu and Mor, 2017), and therefore managing diversity is a prime requisite in IT companies. Differing from the mainstream diminishes an employee's perception of being accep ted by members of the mainstream. As a result, minority individuals tend to develop hostility towards other group members and feel rage and frustration. Managing diversity effectively needs an appropriate diversity climate and ther efore accentuating a positive diversity climate is indispensable for personnel in the IT sector. On a predicted base of 4.6 million IT personnel in 2021, industry analysts project a 22-23 percent turno verrate. The IT industry suffers enorm ous losses when personnel quit. In addition to accounting for replacement expenses, organizations also account for the cost of vacant positions. Increasing workplace diversity is hampered signi ficantly by voluntary turnover (Mor Baraket al., 2016). As the IT industry undertakes initiatives to promote work place diversity, retention has emerged as a "key strategic imperative." (Barreto, 2019). Though some types of employee turnover are impossible to prevent (e.g., retirement and termin ation), employers must understand what they can do to limit voluntary turnover. Contextual ization is required for the creation of effective retention techniques. Underst anding workplace culture is vital to comprehending organizational context and developing effective retention tactics (Hom et al., 2017). Individuals might be enticed to an organization with personnel having common traits and beliefs, and therefore personnel unfit ting within an organization tends to quit (Mobley, 1982) making organizations more homogeneous (Schneider, 1987). According to social identity theory, individuals sort themself based on salient traits like gender, age, or race, and behave in congruence with their salient ideologies (Hog and Terry, 2010). Demographic maladaptation has been found to impact turnover, and the result implicitly indicates the significance of diversity on employee turnover intent ions (Lee et al., 2020). Employees experiencing an unfavorable climate for diversity contends that the organization does not appreciate their efforts, thus resulting in increased intentions to quit (Buttner and Lowe, 2017). On the contrary, Dwertmann et al. (2016, p.1153) elucidated that "employees who work in positive diversity climates are more likely to reciprocate in the form of positive work attitudes". Collecting a sample from the multitude of racial groups in the United States, McKay et al., (2007) reported a negative relatio nship between diversity climate percep tion and turnover intention. Further, Lee et al., (2020) also docum ented the negative relationship between diversity climate and turnover intent in Korean multinational corporations. Similarly, one of the recent studies by Kaur et al., (2022) also reported a negative relatio nship between diversity climate perce ption and turnover intention. Indeed, factual corroboration supports that employees' perception of diversity climate is negatively linked to their turnover intentions (Barreto, 2019; Brimhall et al., 2014). In light of the above discussion, the study hypothe sizes: H1. Perceived diversity climate relates negatively to turnover intentions. The mediating role of affective commi tment Social exchange theory (Blau, 1964) presents a fundamental basis to elucidate the association between diver sity climate and individual-level outco mes. The theory kingpins on the resources that individuals acquire and add to social interaction. The exchan ging groups adhere to the reciprocity principle, which states that the group receiving the resources is obliged to reciprocate to the group rendering the resources. Employees and organizations are the two groups involved in workp lace exchange (Oh, 2020). The perce ption of employees and their behavioral standards are shared based on organiza tional protocols, policies, and proced ures which further creates the climate of the organization (Bowen and Ostroff, 2004). Mor Baraket al., (1998) conten ded that incorporating under-represe nted personnel with fair and equitable policies leads to a positive impact on the perception of employees regarding the climate for diversity. Equal opportu nities for advancement are deemed as pro-diversity. In supporting environm ental settings, employees perceive themselves as an integral part of the organization (McKay et al., 2007; Ely and Thomas, 2001), thus, reciprocating toward the organization with high commitment and lower turnover intentions. Previous research has reveale d a linkage between organizational

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commitment and turnov er intentions (Arnold and Feldman 1982; Porter et al., 1976). A meta-analysis by Rubenstein et al., (2018) documented that organizati onal commitment reduces employee turnov er by a substantial amount. McKay et al., (2007) demonstrated empirically that organizational commit ment can act as a mediating factor between diversity climate and turnover intentions. Meyer and Allen (1997) posited three constituents of comm itment: continuance, affective and normative commitment. Allen and Meyer (1996) point out that affective and normative commitments are so closely related that they cannot be considered distinct constructs. Additi onally, a study discovered that contin uous commitment is unlikely to be classified as a constituent of commitm ent because it implies that employees have no choice but to remain in their organization (Ahn and Lee, 2015). Consequently, the present study concen trates on affective commitment with the premise that it partially mediates the relationship between diversity climate perception and turnover intentions. H2: Affective commitment partially media tes the relationship between perceived diversity climate and turnover intention.

RESEARCH METHODOLOGY

Sample and study procedure For this study, the sample for the analysis was drawn from the Indian IT industry located in the Delhi-NCR region, one of the major hubs of IT companies in India. Using non-probability conve nience sampling, the online questionna ire was distributed to 389 respondents through google forms. Out of the total, 311 responses were received; yielding a 79.9 percent response rate. We retained 302 valid responses after the post-data screening for missing and incomplete values.

TABLE I. RESPONDENTS PROFILE (N=302)

Demographic variable	Category	Sum	%
Gender	Male	165	54.6
	Female	137	45.4
Age (in years)	Below 25	65	21.5
	26-30	81	26.8
	31-35	86	28.5
	36-40	54	17.9
	40-45	11	3.6
	Above 45	5	1.7
Marital status	Single	158	52.3
	Married	144	47.7
Educational qualification	Bachelors	221	73.2
	Masters	77	25.5
	Other	4	1.3
Total work experience	Less than 5 years	99	32.8
	6-10	102	33.8
	11-15	81	26.8
	16-20	16	5.3
	More than 20 years	4	1.3

Source(s):
The Authors

Measures

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The estimation of each latent variable was based on indicators. Unless otherwise specified, all indicators used a Likert response scale arrayed from 1 = "strongly disagree" to 7 = "strongly agree". Diversity climate has been measured using 6-items (organizational fairness factor) adapted from the 'Diversity perception scale' developed by Mor Barak et al., (1998). The sample item includes "I feel I have been treated differently here because of my sex, religion, or age". [Cronbach's α = 0.91]. Affective commitment was assessed using the 5-item scale adapted from Allen and Meyer (1996). The sample item includes "This organization has a great deal of personal meaning for me". [Cronbach's α = 0.90]. For measuring turnover intentions, this study adapted a 3-item scale developed by Liu (2005). The sample item includes "It is very possible that I will look for a new job next year". [Cronbach's α = 0.94]. The constructs used in the study were reliable, exceeding the minimum criterion of 0.70 with a Cronbach alpha coefficient between 0.90 and 0.94. (Nunnally, 1994). 3.3 Data analysis For analysis, the "Structural Equation Modeling" (SEM) approach was employed. Furthermore, we employed bootstrap analysis (5000 bootstrap samples) to determine bias-corrected confidence intervals for the proposed indirect effect.

RESULTS

Table II. reveals that none of the correlation values reach 0.80, indicating that there is no significant problem with multicollinearity in the sample (Asrar-ul-Haq et al., 2019). 4.1 Confirmatory factor analysis (CFA) To test the model fit, we used the traditional cut-off values of fit indices ((i.e., CMIN/df < 3, comparative fit index (CFI) > 0.90, root mean square error of approximation (RMSEA) < 0.06, standardized root mean square residual (SRMR) < 0.08; Hair et al., 2010). A good fit is indicated by fit indices for our proposed measurement model (CMIN/df = 1.76, CFI = 0.98, RMSEA = 0.05, SRMR = 0.08). Table II. shows composite reliability of each variable is greater than 0.70, implying strong convergent validity (Malhotra, 2017). AVE determines the discriminant validity. The value of the square root AVE should be greater than the value of the correlation construct (Hair et al., 2010). In Table II, bracket values represent AVE's square root, indicating that discriminant validity is also supported.

TABLE II. CORRELATIONS AND VALIDITY

S. No.	Variables	1	2	3	CR	AVE
1	Diversity climate	***(0.793)***			0.91	0.63
2	Affective commitment	0.35**	***(0.768)***		0.89	0.59
3	Turnover intentions	-0.37**	-0.25**	***(0.916)***	0.94	0.84

Note: **p < 0.01; bold numbers on the diagonal reflect AVE's square root.

SOURCE: THE AUTHORS

STRUCTURAL MODEL

After ensuring that the measurement model possessed sufficient reliability and validity, the proposed structural model was analyzed. The causal relationship between the variables was tested and the significance of the path coefficient was estimated. Three metrical estimations, including the regression coefficient (ß), degree of significance (p-value < 0.05), and critical ratio (CR > 1.96) have been used to test the research hypothesis. Results indicated a negative relationship between perceived diversity climate and turnover intention (H1: ß = -0.369, t = -6.899, p < 0.01), thus supporting H1. In addition, perceived diversity climate is positively and significantly related to affective commitment (ß = 0.35, p < 0.01) and the relationship between affective commitment and turnover intention is negative and significant (ß = -0.14, p < 0.05). 4.3 Mediation analysis According to Oh (2020, p.153) "An indirect effect is considered to be significant if 95% bias-corrected confidence intervals does not include 0". The findings of bootstrapping as shown in Table III, indicated that the indirect effect via affective commitment is significant (5000 bootstraps; indirect effect = -0.481; 95% CI [-0.11, -0.01], thus supporting H2.

Table III. Bootstrapping results for mediation

Mediation path	Indirect effect	SE	95% confidence interval
Perceived diversity climate ---> Affective commitment ---> Turnover intentions	-0.48	0.05	(-0.11, -0.01)

Note: Bootstrap with 5000 samples
Source: The Authors

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DISCUSSION AND CONCLUSION

In comparison to the conventional reactive and pessimistic stance, the empirical results of the study demons trate optimistic and substantial effects of perceptions of diversity climate among organizational employees. The study results indicated that employees' intention to quit the organization decreases with an increase in a positive climate for diversity, thus supporting Hypothesis 1 (H1). This significant result suggests that demographic diversity perception need not inherently be generated by categories that invoke undesirable stereotypes, inequalities, and presumptions. Paralleling the burgeoning interest in diversity issues, researchers have investigated the impact of diversity climate perceptions and concluded that managing diversity effectively will lead to an increase in favourable outcomes, thus, nullifying the pillars of distinction and categor ization that are central to social beings. In order to build supportive work envir onments and to reduce the likelihood of employee turnover, diversity mana gement is unavoidable. Based on the theory of social identity, it is believed that diversity in the Indian IT industry is an important predictor of turnover activity. Additionally, by addressing affective commitment as a mediator between diversity climate and related outcomes, this article adds up to the existing diversity literature. The mediation test demonstrates that affective commitment partly mediates the impact of associations between employees' perception of diversity climate and employee turnover intentions. The study results were congruent with McKay et al., (2007) in the context of national retail organizations. Based on our study findings, we conclude that the appreh ension of the diverse enviro nment substantially decreases turnover intent ions not only directly but also indirectly through the importance of employees' affective commitment.

IMPLICATIONS

THEORETICAL IMPLICATIONS

Researchers frequently analyze the influence of diversity attributes on different measures with suppositions based on the perception of those attributes (Kirchmeyer, 1995). Theref ore, the current research emphasizes understanding the dynamics of diversity by scrutinizing employee perception, instead of assessing actual diversity. Secondly, as asserted by Klarsfeld et al., (2014), in different social contexts, the policy, discussion, and introspection of multiculturalism-related issues have been hesitant, passive, and perceived as daunting. By analyzing diversity in the context of India, this study adds up to the pre-existing literature Managerial implications Under the burden of doing something regarding increasing divers ity in workplaces, many organizati ons are implementing diversity training sess ions for employees without prior evaluation. The drawback of this "one size fits all" approach is that such techniques can be efficacious in sensitiz ing dissimilar individuals, but they are not coping with the systems and practices of organizations that can pro mote the erroneous treatment of dissimilar individuals. Organizations need to critically evaluate and modify their policies and practices and how they have been carried out in conjunction with these interventions Thus, understanding diversity-related organiz ational characteristics is a significant phase in scheming effective interven tions for an organization (Barak, 1999). In addition, instituting participatory decision-making systems and a sturdy mentoring mechanism to integrate employees who differ from the mainstre am into the organization's inner circle should be implemented as ongoing initiatives over a prolonged time to reap positive and potential benefits, instead of just one-time managerial checklist event.

LIMITATIONS AND RECOMMENDATIONS FOR FUTURE STUDIES

Due to the compilation of data from the Indian IT industry, the outcomes may differ in other organizational contexts. Secondly, a cross-sectional design has been used for data collection. For example, no follow-up was conducted to ascertain whether the respondent's intent to quit manifested in actual actions. Future research initiatives may solve this problem by incorporating longitudinal studies that examine the antecedents and consequences of a diverse climate. Besides, for this analy sis, affective commitment was consid ered as an intervening variable. Future researchers can include other mediating variables like inclusion or organizational justice.

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Reinventing People Analytics: A Study Of Changing Scenario With Automated Systems In Human Resources

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ABSTRACT:

The workplace scenario in today's world has seen a paradigm shift in the way we work since early 2020. The swift change in the workplace approach is due to emergence of digital technologies that have had a significant impact on the future of work- that is offline and online mode of operations. HR leaders and recruiters are gearing to update all the processes of Human Resource System in an automated form. Earlier HR Department were at the forefront of addressing various internal and external transformative challenges imposed by external environment, such as innovative workforce models and ensuring employees' physical and mental well-being etc. In 2022, HR professionals will undoubtedly have to ride the waves of transformation that have rippled for the last two years. Incorporation of emerging technologies and making data-driven decisions is no longer restricted only to driving business. HR-related technologies like People Analytics & Digital HR will boost business productivity and employee engagement in diverse work settings. To achieve this goal, recognizing the changes in industry trends is critical in order to remain relevant in today's ever-changing business and work environment. This paper will give an overview of all that data driven system that can be used for faster and efficient Human Resource utilization in the Industry. It will also focus on the challenge that Human resources are facing in the view of this paradigm shift.

Keywords: ***Emerging Technologies, Data-Driven Decisions, People Analytics & Digital HR, Challenges of New Improved Methods.***

INTRODUCTION

People analytics is the collection and use of personnel data to enhance a critical talent pool and business outcomes, i.e., an organization's efficiency. Through the development of data-driven insights to guide talent-based decisions, enhanc ement of workforce procedures, and promotion of good employee experien ce for long-term retention, the study of people analytics enables improved management of Human Resources. People analytics is the process of gathering and turning organizational and human resource metrics into useful insights that enhance business operati ons. People analytics may also be referred to as HR analytics or workforce analytics, although they refer to the same thing.

DIFFERENCE BETWEEN HR ANALYTICS AND PEOPLE ANALYTICS:

While HR analytics focuses on descr iptive data analysis and decision-making tools, people analytics emphasiz es practical analytics applied to people management and recruitment. We must first grasp how the HR data analysis process functions in order to better comprehend their distinctions.

THE SEVEN PILLARS OF PEOPLE ANALYTICS:

Employee Planning: Workforce plann ing involves analyzing, projecting, and planning workforce supply and demand, identifying gaps, and deciding on targeted talent management interventio ns to make sure an organization has the right people with the right skills in the right places at the right time to carry out its mission. Competency and Talent Sourcing: Employers build talent pipelines and talent pools through sourcing. They actively seek people who would be a good fit for their company, and then they utilize a variety of networking strategies to keep them interested until a position opens up. The recruitment process's complex and difficult domain is talent sourcing. Talent acquirement: The strategies, techniques, and procedures used to locate, hire, and retain the human resources a firm needs fall under the umbrella of talent acquisition. It consists of creating, putting into practice, and assessing programs for sourcing, recruiting, hiring, and orient ing. Source generation, attraction, interviewing, recruitment, and emplo yee onboarding are the main stages of talent acquisition. Onboarding Culture Fit and Engagement: An effective onboarding plan offers an ideal opportunity to boost employee engage ment by, for example, fostering a supportive relationship between new

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hires ...

PHASES OF EMPLOYEE ONBOARDING

Pre Preparation Phase: Once the employee has accepted the offer letter and he/she is starting off day one at a new job. Placing On the Job and Welcoming new employees (Orientati on and Induction) Training and Development of the employees on ana lysis of Performance (Based on data metrics) Transformation of Skill sets of employees to develop for the new role or job through job enlargement and enrichment Placement of Employees On the Job is based on Four C's - compliance, clarification, culture, and connection. Performance administra tion and Employee Lifetime Value: an ongoing, continuous process of articulating and outlining work obligat ions, priorities, performance standards, and development plans that maximize performance and support organiza tional objectives. Talent Maintenance: The capacity of an organization to retain its people is known as talent retention or employee retention. When employees decide against seeking employment elsewhere, they prefer to remain with their current employer. tactics for retaining staff that promote job satisfaction Employee Health and Welfare: 5 ways to improve employee well-being and enhance satisfaction and Productivity in the Workplace:

Identify possible drivers of stress. Implement employee mental health programs. Encourage Mindfulness in the workplace. Offer fun activities to recharge employees. Recognize employees for their hard work.

EXAMPLES OF PEOPLE ANALYTICS IN THE WORKPLACE

The forecasting and prediction of employee departure or turnover. Decide on a workplace. Improving employee work-life balance by lowering stress levels. Increasing staff retention and preserving a supportive and open culture. An increase in worker perform ance. Workforce planning and foreca sting to ensure the right worker is present at the appropriate time and location. Diversity analysis by contras ting different workforces based on age, experience, academic qualifi cations, etc. Better training and develop ment initiatives that take into account user needs.

REVIEW OF LITERATURE:

Nishad Nawaz Journal of Information & Knowledge Management, April 2017 The purpose of this article is to explore the relationship between HR and technology, identify current HR technology trends, and recommend some potential directions for further investigation. Design/ methodology/ approach: Systematic reviews of publications and articles on HR and technology make up the study. Results: The results conclude the research of HR and Technology and help to provide a more comprehensive perspective on the subject. A conceptual framework is also suggested with the intention of directing and informing future research initiatives. AizhanTursunbayeva, StefanoDi LaurocClaudiaPagliaria Pages 224–247 of Volume 43 of the International Journal of Information Management, December 2018. This mixed-method "scoping review" charted the development of the phrase "people analytics" (PA), the value propositions made by providers of PA technologies and services, and the skill sets in demand by industry experts. The relative trajectory of PA and concept ually related terms over the past fifteen years has changed, according to an analysis of academic research and online search volume since 2002. This indicates both a re-branding of similar advances and a difference of goals and communities of practise. Impact of Artificial Intelligence on HR practices in the UAE: Abhilasha Singh & Apurva Shaurya Humanities and Social Sciences Communications volume 8, Article number: 312 (2021) Social trends and information technology are creating pressure, resulting in organizations being forced to update and recreate themselves. In light of this, there is a growing tendency towards the adoption of artificial intelligence technologies. With the use of a mixed-method approach, this study intends to explore and investigate the impact of artificial intelligence (AI) on human resources (HR) practices in UAE enterprises. The research issues were investigated and put to the test using a mixed-method approach.

CHARACTERISTIC FEATURES OF HR ANALYTICS IN AN ORGANIZATION

By studying historical data, determine the fundamental reasons for and trends in employee attrition. Gathering inform ation on the productivity and engage ment of human resources It is simple to analyze data to understand the behavior of both new and existing employees. Interpreting data and turning it into usable information that may be presented in a variety of dep artmental reports. Through the connection of various forms of data, understanding changes and trends underlying significa nt issues such as low employee appraisal, compensation increases, etc Improving

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process models to better understand how an employee's performance and behavior relate to one another. Writing reports to aid in decision-making and formulating plans to enhance general performance and worker satisfaction.

IMPACT OF HR ANALYTICS ON BUSINESS

As everything becomes digitally data-based, HR management can show how it directly influences strategic company objectives. Data administration and listing can both be automated. It aids in the identification of productivity-related issues and the development of strategies to improve organizational performance. In this unpredictable and fast-changing business environment, success depends on businesses' ability to react swiftly to these changes. Human Resources can employ data analysis to create a hiring process that prioritizes candidates with a higher degree of adaptability in order to adjust to the dynamic enterprises of the modern world. HR may use data to successfully recruit innovators One of the most important skills in personnel managem ent is the capacity to foresee trends and impending issues or opportunities.

CONCLUSION

High-Quality Recruitment: HR professionals may gain insights into the hiring process by tracking data on recruitment parameters including cost per hire, application completion rates, quality of hire and source, and applicant experience. Lower Attrition Rates: Employees are more likely than ever to quit their jobs quickly these days. Using employee-related data, you may use HR analytics to uncover your organization's hidden patterns and trends and learn what influences employee retention. On the basis of numerous data points, HR experts also provide recommendations for lowering attrition rates. Gains Employee Trust: HR analytics can help by gathering information on employee reactions when you adopt a new plan and want to know what they think. Based on the data, HR management can increase employee happiness. Ideal Work Opportunities: On the company website, employees can look for jobs based on their location, talents, and interests. The data pertaining to the aforementioned criteria is gathered and shown on the website's dashboard via HR analytics. These facts aid job seekers in locating an appropriate position in the place they prefer.

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Transforming Education: An In-depth Analysis of India's New Education Policy

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ABSTRACT:
Education fosters personal growth and fulfillment, as well as motivating individuals to maximize their mental, physical, emotional, and spiritual capabilities. Because education leads to economic and social advancement, a country's education strategy at the school and college levels must be well-define. India's education system plays a crucial role in shaping the future of its citizens and the nation as a whole. Recognizing the need for comprehensive reforms, the Indian government recently introduced a new education policy aimed at transforming the country's education landscape. This article provides a comprehensive analysis of India's new education policy, focusing on its key features, potential benefits, and challenges. The policy's emphasis on holistic development, skill-building, and inclusivity has the potential to revolutionize education in India. However, its successful implementation requires careful planning, effective execution, and collaboration between various stakeholders. This article explores the policy's potential to push educational excellence, nurture innovation, and create a skilled workforce capable of meeting the demands of the 21st century. National Education Policy, it lays forth an encouragingly hopeful vision for the future.

Keywords: *New Education Policy, Transformation, Reforms, Development*

INTRODUCTION

India's educational system is at a critical crossroads. On the one hand, it is slated to replace an out-of-date model with the National Education Policy 2020. New digital learning platforms and creative teaching practices, on the other hand, are propelling it to global standards and setting new benchmarks. The new National Education Policy (NEP) 2020 was recently adopted by the Union Cabinet, with the goal of bringing various improvements to the Indian education system, from school to college level. The goal of the NEP 2020 is to make India a "global knowledge superpower." The Cabinet's approval of the NEP is just the third major overhaul of India's educational structure since independence. The two previous education strategies were implemented in 1968 and 1986, respectively. Any country's education is judged by the quality of its human capital. The NEP 2020 aims at making "India a global knowledge superpower". The Cabinet has also approved the renaming of the Ministry of Human Resource Development to the Ministry of Education. The NEP cleared by the Cabinet is only the third major revamp of the framework of education in India since independence. Because the fundamental difficulties in the education sector are accessibility, affordability, and quality, it's also vital to talk about the major changes that have occurred as a result of the implementation of NEP-2020. Schooling: The National Education Policy of 2020 has superseded the 34-year-old National Policy on Education, which was drafted in 1986. Several innovations in school education have been implemented as part of the NEP 2020. The following are significant reforms for students, teachers, and schools. Education must be made universal: By 2030, school education will have a 100% Gross Enrolment Ratio (GER) from preschool through high school. Teachers and Anganwadi workers would be taught in ECCE pedagogy and curriculum in Angan wadis and pre-schools. The ministries of education, women and child development (WCD), health and family welfare (HFW), and tribal affairs will collaborate on ECCE planning and execution. It will also include a 12-year schooling programme, as well as three years of Anganwadi/pre-schooling. System of open education: Through an open schooling system, bring 2 crore out-of-school youngsters back into the mainstream. • Structure of the curriculum and instruction: The current 10+2 system to be replaced by a new 5+3+3+4 curricular structure corresponding to ages 3-8, 8-11, 11-14, and 14-18 years respectively keeping in mind a child's development and capabilities.

STRUCTURE OF THE CURRICULUM AND INSTRUCTION:

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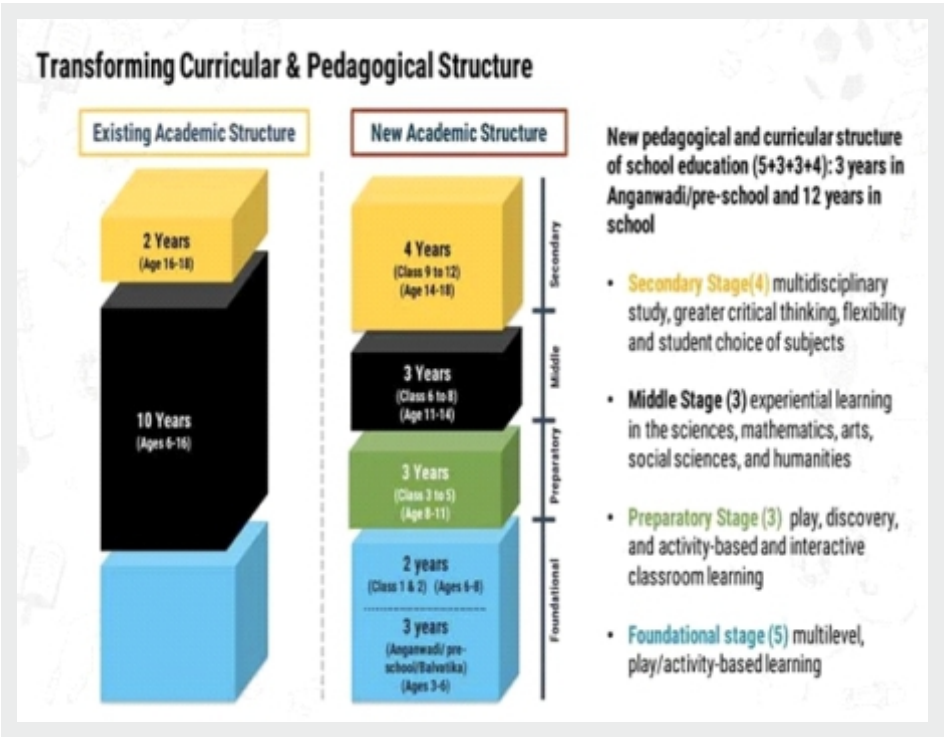

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Governance of Independent Schools: With a new certification framework and an independent authority to regulate both public and private schools, school governance is likely to alter. A focus on developing core literacy and numeracy skills: The education ministry will establish a National Mission on Foundational Literacy and Numeracy. By 2025, states will have developed a plan to achieve universal basic literacy and numeracy in all primary schools by the third grade for all kids. There will be no sharp distinctions between the arts and sciences, curricular and extracurricular activities, or vocational and academic tracks. Students can choose from a variety of disciplines throughout streams. Emphasis on the mother tongue as a teaching medium: The National Education Policy emphasizes the use of a child's mother tongue as the primary language of teaching. The NEP, on the other hand, just encourages the mother tongue as a medium of education; it is not required. Teacher Education redesign: The National Council for Teacher Education (NCTE), in collaboration with the National Council of Educational Research and Training (NCERT), will develop a new and comprehensive National Curriculum Framework for Teacher Education (NCFTE) 2021. A four-year integrated B.Ed. degree will be the minimum degree requirement for teaching by 2030. Curriculum Flexibility: Three or four years of holistic undergraduate education with a flexible curriculum can be completed in three or four years, with several exit alternatives and proper certification available throughout that time. M.Phil. courses will be phased out, and all undergraduate, postgraduate, and doctoral courses will be multidisciplinary. Facilitate Credit Transfer: To facilitate the transfer of credits, an Academic Bank of Credits will be established. An Academic Bank of Credit (ABC) will be formed to digitally record academic credits acquired from multiple recognized HEIs, allowing degrees from those institutions to be given based on credits gained. Multidisciplinary education with a holistic focus: Multidisciplinary Education and Research Universities (MERUs) on par with IITs and IIMs would be established as national models of finest multidisciplinary education. By 2040, all higher education institutions (HEIs) will strive to be multifunctional institutions with a student population of 3,000 or more. By 2030, every district will have at least one large interdiscip linary HEI in or near it. A university is a multidisciplinary higher education institution that offers undergraduate and graduate program mes, as well as high-quality teaching, research, and community participation. Developing a Research Culture: The National Research Foundation will be established as the apex organization for creating a strong research culture and increasing research capacity in higher education. The university will now accept a variety of institutions, ranging from research-intensive universities to those that place equal emphasis on teaching and research. Teaching-intensive universi ties are those that concentrate a larger emphasis on teaching while still condu cting significant research. Governance of Higher Education Commission of India (HECI): HECI will be established as a single umbrella organization for all higher education, with the exception of medical and legal education. Regulation, accreditation, and academic standards will all be governed by the same set of rules for public and private higher education institutions. Granting auton omy to colleges: College affiliation will be phased out over the next 15 years, and a stage-by-stage method for giving graded autonomy to colleges will be established through a transparent system of graded accreditation. HEIs will have the liberty and ability to move from one category to the next as their goals, activities, and effectiveness dictate. NEP 2020: The First Step

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Towards Change Solid intellectual foundation and robust academic development According to research, by the age of six, a child's brain has developed 85 percent of its total potential. The new 5+3+3+4 formula provides a firm foundation by dedic ating the first five years to foundational learning, followed by regularly assessed academic growth throughout the preparatory, middle, and secondary stages. Holistic development for students of all grades NEP will inspire a shift from rote learning to in- depth understanding. The curriculum content will be reduced to core essentials and create more space for critical thinking, discussions, and analysis. Teaching and learning will be more interactive, exploratory, collabora tive, and experien tial. Flexibility in choice of subjects: Students will enjoy far greater flexibility in choice of subjects, with no hard separation between the streams of arts, humanities, commerce and sciences. Skill development: The proposal of a yearlong course in grade 6-8 in carpen try, electric work, gardening, pottery, metal work etc. will help in skill develop ment. Improved student assessment NEP 2020 proposes Standardized state school exams for grades 3, 5 and 8 and Board exams for 10 and 12. Exams to test literacy, numeracy, and foundational skills will be very important. A Digital Drive: New platforms and techniques of teaching-learning Digital revolution and pedagogical innovations are perpetually creating new platforms of learning and techniques for teaching. NEP 2020 will further open the field for creativity. The educational institutions will have to overhaul their infrastructure to accommodate new facilities for the implementation of the curriculum as envisioned in NEP. Supporting Digital Economy: This strategy could be a brilliant step in terms of meeting the demands of the digital economy. Indian languages aren't among the most popular on the internet, and the majority of them haven't gone online at all. Millions of Indians have been unable to access the internet as a result of this. According to the FICCI, the availability of online content in regional languages will enable around 200 million Indians to become digitally empowered. The limited linguistic scope available on the internet has also hampered represent ation by limiting access to various voices expressing their lived experiences, resulting in knowledge gaps in some geographies and cultures.

CONCLUSION

The National Education Policy aspires to promote an inclusive, participative, and comprehensive approach to educa tion that takes into account field exper iences, empirical research, stakeholder feedback, and best practice lessons. It's a gradual shift toward a more scientific educational method. The stipulated structure will aid in catering to the child's abilities - phases of cognitive dev elopment, social and physical aware ness, and so on. If implemented in its entirety, the new structure has the pote ntial to bring India up to pace with the world's leading nations. The lack of digital skills has the potential to worsen already- existing disparities. The NEP recognizes the importance of diversity and provides policy design provisions to overcome existing imbalances. Ho wever, its successful implementation will require sustained effort, collabo ration, and investment from all stakeholders. By addressing the key features, benefits, challenges, and implementation strategies, this article aims to provide a comprehensive understanding of India's new education policy and its potential impact on the future of education in the country.

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A Comparative Study Of Mutual Funds And Insurance

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ABSTRACT:
This research paper presents a comprehensive comparative analysis of mutual funds and insurance as investment options, focusing on their performance and risk characteristics. The study aims to provide investors with valuable insights to make informed decisions when considering these two popular investment vehicles. The research evaluates a diverse range of mutual funds and insurance products, examining their historical performance, risk-adjusted returns, and associated risks. The research design employed a mixed-methods approach, combining quantitative data analysis and qualitative insights. The questionnaire comprised a set of carefully crafted questions that addressed various aspects, including demographic information, investment objectives, risk tolerance, knowledge about mutual funds and insurance, and decision-making factors. The survey was distributed electronically, ensuring a wide geographic reach and a diverse participant pool. By comparing the performance and risk profiles of mutual funds and insurance, this study aims to highlight the unique features, benefits, and considerations associated with each investment option. The findings of the study revealed intriguing trends in investment preferences and risk perception among the participants. A significant proportion of respondents exhibited a preference for mutual funds, citing factors such as potential returns, diversification, and professional fund management. Insurance products, on the other hand, were favoured by those seeking stability, long-term financial planning, and risk mitigation.

Keywords: ***Mutual funds, Insurance, Performance, Risk, Comparative analysis.***

INTRODUCTION

In the realm of investment options, mutual funds and insurance products play significant roles in assisting indiv iduals and institutions in achieving their financial objectives. Mutual funds offer diversified portfolios managed by profe ssionals, while insurance provides risk protection and financial security. Both investment vehicles have unique featur es, benefits, and considerations, making them attractive options for investors with varying financial goals and risk preferences. The objective of this resea rch paper is to conduct a compara tive study on mutual funds and insura nce, focusing on their performa nce and risk characteristics. By analyzing the histor ical performance, risk-adjusted returns, and associated risks of these investment options, this study aims to provide investors with valuable insights to make informed decisions when choosing between mutual funds and insurance products. The study recognizes the importance of evaluating the perfor mance of investment options to assess their potential for wealth accumulation and achieving financial goals. Perform ance analysis encompasses examining historical returns, identifying risk facto rs, and comparing performance across different investment categories and time periods. By conducting a thorough examination of mutual funds and insurance products, investors can gain a deeper understanding of the potential returns and risks associated with each option.

OBJECTIVE

To study on the mind-set of investors while investing in mutual fund or insurance. To compare the investing trends of Indian retail investors in mutual funds and insurance. To study various types of mutual funds an insurance with reference to Bajaj capital.

LIMITATIONS OF THE STUDY

Non-response Bias: There is a possibi lity that certain groups of individuals may be more or less likely to respond to the questionnaire, which could introdu ce non-response bias. This may affect the representativeness of the sample and potentially bias the results. Subject ive Measures: Some aspects, such as risk perception or satisfaction levels, rely on subjective measures provided by respon dents. Interpretation of these measures can be influenced by individual biases and perceptions, potentially impacting the validity and comparability of the results. Generalizability: The findings of the question naire-based study may be specific to the context and time period in which the research was conduc ted. They may not be directly applicable to other regions, countries, or periods with different economic, regulatory, or cultural factors.

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LITERATURE REVIEW

Akshatha P (2022) is to maximize return while minimizing risk and credit risk through diversity. An appealing option for people looking to invest their money is a mutual fund. But he affirms that a bank investment will always be the people's top preference; a mutual fund or any other source of income can come in second. This article's primary goal is to assess the mutual funds that invest in diverse Indian equity. Rahatgi, Kavida yal, Mishra, Singh, and Dixit (2020), the focus of this research work is on approving the return- and risk-based selection strategies of mutual funds in India. "Paper evaluated the concept that all mutual fund plans are determined based on the most significant net resou rce and placement. By calculating the assets' monthly returns, these mutual fund plans' positioning is approved. For this analysis, experts used data from a variety of sources, including the Yippee Fund, online value research, the RBI, the NSE, and others. Following this inquiry, experts will work to help investors identify between and carefully choose the mutual funds conspire in their portfolios because all mutual fund conspiracies, regardless of whether they are on higher positioning. According to Prashant Shah's (2006) analysis, invest ing in mutual funds is the best alternative for investors who don't want to take any direct exposure to the market. In addition, securities markets assist investors in building their wealth over time. However, the investor must keep in mind that: "funding for Market risk is there for mutual funds ". Rajasekar (2013) revealed investors' assessments of their profiles, income, saving habits, investment preferences, and personality traits. A survey was done to determine the level of investor preference while taking numerous aspe cts into account that influence investors' decision-making. It was observed that investors were extremely concerned about the security, expans ion, and liquidity of their investments. Respo ndents were generally pleased with the results and level of service provided by a well-known mutual fund institution. Jagongo and Mutswenje (2014) discov ered that prior stock performance of corporations, reputation and standing in the industry, expected corporate profita bility, 60 and anticipated investor returns were the most crucial elements influencing individual investors' selections.

RESEARCH METHODOLOGY

Only primary data is used (questionna ire). The primary data are essential since they provide up-to-date trends and trustworthy results. It can be viewed as a science that studies how scientific research is conducted. One of the most crucial functions of research technique is that it aids in problem identification, data collection and analysis, and authe ntic information interpretation. This study is entirely supported by primary data, which was gathered through interactions with people. I have gather ed all of the fundamental knowle dge and perception on investing and saving in the primary data. I received 100 responses to this survey, and the majority of them are from people in my network who are employed, studying, or retired.

DATA ANALYSIS AND INTERPRETATION

While conducting the survey, 100 responses where collected out of which 87 respondents belongs to the age group of 18 – 25, 8 belongs to the age group of 26 – 35 and 5 are above the age of 35. Out of 100, 71 are male and 29 are female. 80% of the respondent are from the income slab of up to 5,00,000.

TABLE1: INVESTED IN ANY KIND OF INVESTMENT TOOL.

Ever invested	Response
Yes	65
No	35
Total	100

Through this survey I came to know that 65% of the respondents have invested in various tools. But 35% people have never invested in any tools and it indicates that we have an opportunity to make peoples ready for the investment but just we have to do is we have to spread the awareness and tell them how inflation just killing their purchasing power.

TABLE 2: INFLUENCERS TO INVESTMENT

Investment influenced through	Response
Newspaper	9
Financial advisor	19
Internet	42
Finance student	14
Other	16
Total	100

42% of the people influenced by internet for the importance of investment it means these peoples have the access of technology. It means they got interested in investment from the internet it showing the awareness of peoples from the technology. Now after that remaining other source of influen ce played the equal role. Peoples are conscious but they need a source who will provide the information regarding investment and all. So this can be done through awareness campaign.19% of the people were influence by financial advisor.

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TABLE 3: NUMBER OF INVESTOR PREFER MOST FOR HIGHER RETURN

Higher return investment tool	No. of respondents
Mutual funds	61
Insurance	9
Gold	11
Real estate	19
Total	100

According to respondent 61 % peoples consider mutual fund the most because they are partly aware how much poten tial have with the mutual funds in comparison of others investment tools and after mutual fund people consider the real estate for the investment purp ose although real estate also can give the good return out of the investment but not in the comparison of mutual funds and insurance sector are taken as a last option for the saving and investment.

TABLE 4: NUMBER OF INVESTOR FOR DIFFERENT INVESTMENT TOOLS

Preferred mode	No. of respondents
Mutual funds	80%
Insurance (life/health)	20%
Total	100

According to 80 % peoples, they prefer the most mutual funds over the insurance for the investment. It means mutual funds consider the good source of the getting good return only we have to spread the awareness about the mutual funds. As far as the insurance is concern it has also a goof return but they couldn't provide as a mutual fund could.

TABLE 5: NUMBER OF INVESTOR WHO PREFER PARAMETER WHILE INVESTING

Parameters	No. of respondents
Risk appetite	35
Returns	49
Company	13
Credit rating	3
Total	100

According to 49 % peoples considers returns the most important parameter while investing, they majorly conscious on the returns of the investment and they want to invests but the primarily they want know how much potential of this investment will provide me as a return. Thereafter they also consider the risk appetite for the second most important parameter they also want that risk should lesser with respect to investment.

TABLE 6: NUMBER OF INVESTORS HAVE DIFFERENT INSURANCE

Type of insurance	No. of respndents
Life insurance	44
Health insurance	15
Vehicle insurance	14
Home insurance	3
other	24
Total	100

As far as insurance is concern peoples are asked which kind of insurance they have so near about 44 % of peoples said that they have the life insurance and then health, vehicles and other insura nce. It means peoples are conscio us on the aspect of life they consider the life insurance as good sources of invest ment so that we can protect of risk of life and after any bad happens our family will get financial assistance because life is quite unpredictable.

TABLE 7: NUMBER OF INVESTORS WHO INVESTED IN DIFFERENT MF SCHEMES

Investment scheme of mutual funds	No. of respondents
Equity fund	44
Debt fund	15
Hybrid fund	33
ELSS fund	8
Total	100

According to investors who invested in mutual funds scheme so they prefer most to equity mutual fund. Near about 44 % of peoples are invested in equity mutual funds although it has greater risk as comparison to others. The second most preferred scheme is hybrid mutual fund because it has lower risk as compare to equity mutual funds.

TABLE 8: NUMBER OF INVESTOR PREFER MORE IN PORTFOLIO

More in portfolio	No. of respondents
Mutual funds	68
Insurance	22
Other investment tools	10
Total	100

As far as portfolio is concern, respon dent says that there should be mutual funds i.e. 68% more in comparison of others. So according to investor's perception they consider mutual funds much more in comparison of insurance i.e. 22% and others investment tools i.e. 10%.

TABLE 9: NUMBER OF INVESTOR WHO INVEST THEIR INCOME

Income into investment(%)	No. of respondents
5%	35
10%	37
20%	17
30%	11
Total	100

As far as the portion of our gross income for the investment is concern

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majority of respondent says that we should invest 10 % of our gross income into any investment tools for future or any emergency. Thereafter 5 % preferr ed the second most by the peoples it indicates they don't want to invest much more into investment tools. Only 17% peoples say that investment should be 20 % of the gross income that is techn ically true in the case of investment

TABLE 10: NUMBER OF INVESTOR WHO PREFER DIFFERENT TIME HORIZON

Time horizon	No. of respondents
Long term investment	80
Short term investment	20
Total	100

As far as time horizon for the invest ment is concern 80% peoples prefer the long term investment. Because longer the investment greater the returns. In the long run the power of compounding can be seen in wonderful way. The power of compounding plays a big role especially in the long run. So the respondents said that time horizon for the investment should be longer if we want to greater return out of that investment.

CONCLUSION

This comparative study on mutual funds and insurance aimed to provide insights into the performance, risk character istics, and investor preferences of these two popular investment options. By analyzing the results obtained from the questionnaire, this research sheds light on the similarities, differences, and considerations associated with mutual funds and insurance. The findings of this study indicate that both mutual funds and insurance play important roles in investment portfolios, but respondents prefer mutual funds over insurance due to higher rate of return. Mutual funds offer diversification and professional management, while insura nce provides risk protection and wealth accumulation potential. The responde nts exhibited a varying level of awaren ess and understanding of these invest ment options, highlighting the need for investor education and awareness cam paigns. The comparative analysis reveal ed that mutual funds are generally perceived as offering higher potential returns and liquidity compared to insurance. However, insurance products were perceived as providing more stability and downside protection. Risk perception varied among respond ents, with some considering mutual funds to be riskier due to market volatility, while others viewed insurance as having risk related to policyholder stability and claims payment. It is important to acknowledge the limitations of this study. The results are based on self-reported responses from a specific sam ple, which may limit the generalizability of the findings. Additionally, the questionnaire-based approach may not capture all aspects of mutual funds and insurance comprehensively. Future research could explore additional facto rs and employ alternative research methodologies to provide a more comprehensive understanding.

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A Study Of Evaluating Investment Opportunities In Indian Stock Market

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ABSTRACT:
The study aims at reviewing and discovering the lucrative and empirical evidence regarding the stock market performance. The Indian Stock market is soaring every day, it has become a potential investment opportunity for an individual. It is a theoretical paper derived from personal knowledge and data. This paper will highlight the techniques of evaluating the lucrative investment opportunities in the Indian stock market. It will include the fundamental and technical analysis study that are needed to study the flashback trend and the future scope of a stock listed in the Indian stock exchange.

Keywords: ***Indian Stock Market, Technical Analysis, Fundamental Analysis, Ratio Analysis***

INTRODUCTION

The term "investment opportunities" covers a wide range of ways to put money to work, including buying assets and holding them until their value rises or investing in real estate or a business opportunity. The degree of risk and potential reward associated with each decision varies. Investments could be unpredictable, or at least unstable. The value of investments typically fluctua tes. Some people's responses to global politics or economic issues are stronger. The securities commonly traded in the capital markets can be either stocks or bonds (Tandelilin, 2010). Investors need to be completely aware that there is a chance of making money on the stock market, but there is also a chance of losing money. They could potentially lose money, therefore there is no assurance that their capital will be preserved. Because of this, they ought to choose their shares with greater care. They must carry out a stock valuation to identify which shares are more profita ble now and in the future. There are two ways to evaluate the stock market – fundamental analysis and technical analysis. Financial ratio is performed in fundamental analysis to analyze the change in the stock price. Fundamental data are specifics about the overall state of the business, as demonstrated in the financial statements that quantify business performance. These financial statements can include some fundame ntal data, like cash flow, financial ratios, and other performance indicators linked to stock prices. There are five types of financial ratios, Profitability Ratio, Liquidity Ratio, Leverage Ratio, Activity Ratio and Valuation Ratio (Sutrisno, 2009). This study was conducted to determine the influence of fundamental factor and technical analysis variables on stock prices. The ratios which will be undertaken in this study will be PE ratio, Debt to Income ratio, dividend yield ratio, current ratio and earning yield ratio. Other factors like promoter holding and pledge percentage will be analyzed. Technical analysis will include the type of candlesticks and trend line analysis. Fundamental analysis is mainly divided into two parts- qualitative and quantit ative analyses, Qualitative analys is: a study that involves brand value, mana gement decisions, the financial perfo rmance of the company over a given period, and other similar factors. Quantitative analysis: an analysis that is purely number-based and considers the company's financial statements and concludes the share price from the observations. Technical Analysis in contrast to fundamental research, techn ical analysis focuses on statistical trends, such as changes in a stock's price and volume, to help traders spot oppor tunities. The fundamental premise is that all known fundamentals are taken into account by price, hence they are not particularly important. The intrinsic value of an asset is not something that technical analysts try to calculate. Instead, they look for patterns and trends in stock charts that indicate what will happen to a stock in the future. Technical analysis is a trading strategy that evaluates investments and spots trading opportunities by examining statistical patterns gleaned from trading activity, such as volume and price movement. Technical analysis focuses on the analysis of price and volume as opposed to fundamental analysis, which seeks to determine a security's worth based on financial metrics like sales and earnings. It can help improve the assessment of a security's strength or weakness compared to the overall market or one of its sectors. It is

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frequently used to generate short-term trading signals using different charting tools. Analysts can refine their overall valuation estimate by using this information. Charles Dow and his Dow Theory made technical analysis what it is today in the late 1800s. Depending on the needs of the user, technical analysis can be applied throughout a range of durations. One can utilize a time frame of 1m, 3m, 5m, 15m, 30m, 45m, 1h, 2h, 3h, 4h, 1D, 1wk, and 1mo, where "m" denotes minutes, "h" denotes hours, "D" denotes days, "wk" denotes weeks, and "mo" denotes months There are certain assumptions that are followed in technical analysis as mentioned below: Markets are efficient: Technical analysis is predicated on the idea that markets are effective and that the price of a security already reflects all relevant information. Trends will continue until there is a clear signal to the contrary: Technical analysts assume that trends will continue until there is a clear signal to the contrary. History repeats itself: Technical analysis also makes the assumption that market trends and patterns have a propensity to recur over time. As a result, traders can spot trends that are likely to continue by looking at historical price data.

TABLE 10: NUMBER OF INVESTOR WHO PREFER DIFFERENT TIME HORIZON

Basis	Fundamental Analysis	Technical analysis
Relevance	For long term investment.	For short term investment.
Function	Useful for investment.	Useful for trading.
Data used	Both past and present data.	Based on past data only.
Position	Long term position	Short term position.
Form of data	Annual reports, news, economic stats etc.	Uses technical charts only.
Application	Used mainly on stocks but can be applied on derivatives and bonds.	Can be applied to all the assets.

LITERATURE REVIEW

The method most frequently used to evaluate financial statements is financial ratio. The financial ratio connects several assumptions in the financial statements, allowing the financial situation and operational outcomes of a company to be understood. The ratios are a helpful tool for assessing a company's financial status and operations and comparing them to those of past years or other businesses (Simamora,2000). By comparing the financial ratio with that of prior years, financial ratio may also be utilized to identify abnormalities in the execution of the company's operational activities (Wild et al., 2005). A significant justification for buyback choices is a bad set of investment opportunities. Managers ought to return funds to investors rather than put money into initiatives with negative net present value when there aren't any good investment possibilities available. The problem with earlier study is that, in most cases, the researcher is unable to witness the firm's investment opportunity set. As a result, a number of proxies have been employed to gauge the firm's pool of investment opportunities (Gaver and Gaver ,1993). Julio, B., & Yook, Y. (2012) has demonstrated how corporate investment cycles worldwide coincide with the time of national elections. By accounting for growth potential and economic conditions, businesses cut investment spending during election years by an average of 4.8% compared to nonelection years. With varied country and election variables, investment cycle size varies. In order to support the theory that political uncertainty causes businesses to cut investment spending until the electoral uncertainty is resolved, the researcher looked into a number of possible reasons and discovered data to support it. It was discovered that the political process has a significant impact on actual economic outcomes through the channel of political uncertainty. The valuation ratio is used to assess a company's capacity to produce value for shareholders or the general public (investors). This ratio shows how much more money investors are willing to provide the company than the share's book value. According to Brigham and Houston (2012), the Price Earnings Ratio (PER) shows the investor's willingness to pay for each reported profit. A higher PER shows that investors are willing to purchase the company's shares for a greater price.

METHODOLOGY

This paper is based on secondary theo retical data collection method. Metho dology is the pathway or an approach to get the needed information by locating the data from different sources which are primary & secondary. The systema tic collecting, analysis, interpret ation, and reporting of data and findings important to the company is known as marketing research. Research method ology is the study of procedures in order to address a research topic. It is the science of understanding how to do research in a methodical manner. It is basically the specification of the meth od or methods that would be employed to obtain knowledge as well as informa tion or evidence in the context of the

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research problem. In this research report I have used secondary source for data collection. Works that analyze, interpret, or merely recount historical or scientific occurrences are referred to as secondary sources. They are not firsthand accounts themselves; they are written based on firsthand accounts. Secondary sources reevaluate the material and create conclusions by fusing it with data from other sources. They do this by drawing on the facts and experiences from primary sources. Secondary sources frequently offer a condensed and easier-to-understand version of the same essential informa tion because original sources aren't always available to everyone. The accessibility of secondary sources for study is one of their key benefits. Analysis Fundam ental analysis PE ratio The price- earning ratio also known as PE ratio, it compares the price to the earning per share of the company. It is commonly used to determine whether the company is undervalued or overvalued. The approach is straightfor ward and is now widely used by investors to make buy/sell decisions. The liquidity ratio is used to assess a company's capacity to meet its immedi ate obligations. The PE ratio of a company can be compared with the industry PE ratio so that we can analyze whether it is costly to buy or not. The formula for this ratio is obtained by dividing the current price of the stock by the earnings per share. For example, the PE ratio of a company X is 89.4 whereas of Company Y is 20.8 (as of 11 July,2023) which simply means that the latter is much more cheap to buy than the former stock. It also tells the number of years. According to stocks Fama and French(1992), during1963-1990, the high correlation between returns and factors including size, price-to-book ratio, and historical return is proof that existing asset pricing methods are compensating for extra sources of risk. They come to the same conclusion about the earnings price ratio when it serves as the sole explanatory factor for the cross-section of stock returns. However, when book-to-market ratio is also taken into consideration, its significance is lost. Debt to Income ratio The debt-to-income (DTI) ratio calculates how much money a person or business needs to make in order to pay off their debts. If the ratio is more than 1 then it indicates a negative view and the investors should be careful and if it is beyond 10 then that company can get trapped into a debt trap situation in the future. A likely scenario, can be when we divide the debt by 5 and get it equal to the profit. For example, taking the same both companies as taken earlier, company X. has 49.9 which is way higher and it denotes that the company has more debt than the earnings and company Y has 8.11 (as of 11 July,2023) which means that the company has high debt but if managed wisely the company will be able to manage it. For an IT industry this ratio may not prove to be that significant. Dividend Yield ratio The dividend yield ratio, which measures the risk inherent in investing in a company, is the ratio between the company's current dividend and its current share price. Investors seeking dividend income from stocks should continue to focus on those with at least a 3%–4% yield. Dividend is always given on the face value of a company. It denotes that the company pays dividend to its shareholders which also makes the company a lucrative option of investment opportunity for an investor. For example, a company X has 0.31% whereas Company Y has 1.05% which indicates a better investment opport unity. Current Ratio The current ratio (CR) gauges how well current assets can cover current liabilities. Divide current assets by current liabilities to get this ratio. And it demonstrates how assets that will soon be turned into cash pay existing liabilities. According to Brigham and Houston (2012), cash, tradable securities, receivable accounts, and other current assets inventories, too. current liabilities include accrued salary, short-term receivable notes, long-term loans, taxes, and payable accounts. Example, Company X has 1.09 as CR ratio and company Y has 0.5 which makes company Y a better investment opportunity. Earning Yield Earnings yield is the result of dividing the current share price by the earnings per share for a certain financial period. It is the P/E ratios' opposite. Investors can determine how much he has earned per share using the earnings yield. If a company's profits yield is 8%, that indicates that for every Rs. 100 worth of shares purchased, the investor has made Rs.8. it is an important ratio for an investor to analyze whether the compan y will be able to help him incur earnings or not. Example, Company X has 3.45% of earning yield and Company Y has 6.81% which means that company Y will be bake to generate more earnings.

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TABLE 1 COMPARISON OF RATIOS

RATIO	COMPANY X	COMPANY Y
PE RATIO	**89.4**	**20.8**
DEBT TO INCOME RATIO	**49.9**	**8.11**
DIVIDEND YIELD RATIO	**0.31%**	**1.05%**
CURRENT RATIO	**1.09**	**0.5**
EARNING YIELD RATIO	**3.45%**	**6.81%**

Table 1 depicts the comparison of different ratios discussed above. Company X is overvalued in terms of PE ratio than company Y and also have more debt than company Y which makes it more prone to debt trap situation in the future. Dividend yield ratio of Company X is also lower which means that the company is less reliable to pay dividend to its shareholders in the future. The company X holds more assets which depicts that the money is blocked and less cash flow. Earning yield ratio is less which means that the company earns less per shares. Company X despite being a huge franchise, when analyzed on fundamental terms have less investment opportunity than Company Y. Table 2 shows the decomposition measure's results from Fama. Value stock portfolios have produced the biggest risk premiums of any other type of portfolio in this area as well. Compared to other portfolios, value stock portfolios offered investors a significantly higher compensation for their lack of diversification. The fact that all value stock portfolios offered positive net selectivity returns is what is more intriguing to note. Therefore, even on a basis of net selectivity, value stock portfolios have outperformed growth stock portfolios. All P1 portfolios have placed first in the rankings based on net selectivity, with the exception of dividend yield, where P2 took the top spot. This shows that defying the trend and investing in value stock portfolios instead of growth stocks paid off in the form of better returns. So, we may conclude that value stock portfolios can be used to create portfolios that perform better.

TABLE 2 RESULTS OF FAMA'S DECOMPOSITION

Portfolio	*Risk premium*	*Risk premium due to*				*Ranking on the basis of net selectivity*
		Systematic risk	*Selectivity*	*Unsystematic risk*	*Net selectivity*	
P/B						
P1 (value)	0.0297	0.0103	0.0194	0.0025	0.0168	1
P2	0.0251	0.0097	0.0153	0.0015	0.0138	2
P3	0.0214	0.0092	0.0121	0.0011	0.0110	3
P4	0.0176	0.0090	0.0085	0.0008	0.0077	4
P5 (growth)	0.0150	0.0085	0.0065	0.0006	0.0059	5
P/E						
P1 (value)	0.0308	0.0099	0.0209	0.0019	0.0191	1
P2	0.0256	0.0090	0.0166	0.0013	0.0153	2
P3	0.0209	0.0092	0.0117	0.0009	0.0108	3
P4	0.0165	0.0086	0.0079	0.0008	0.0071	4
P5 (growth)	0.0137	0.0094	0.0044	0.0007	0.0036	5
Dividend yield						
P1 (value)	0.0223	0.0086	0.0137	0.0017	0.0119	2
P2	0.0225	0.0091	0.0134	0.0012	0.0121	1
P3	0.0204	0.0085	0.0119	0.0012	0.0108	3
P4	0.0166	0.0090	0.0076	0.0009	0.0067	4
P5 (growth)	0.0168	0.0098	0.0070	0.0008	0.0062	5

TECHNICAL ANALYSIS

Technical analysis is mainly done for short term trading. To understand the technical analysis, it is empirical to understand the candlestick pattern. Ultimate oscillator is a technical indic ator that measures the price momentum of a security. The range of the ultimate oscillator, a range-bound oscillator, is 0 to 100. Levels below 10 and levels beyond 90 are regarded as oversold and overbought, respectively. It is recomme nded to buy the security if the U.O is less than10, and to sell it if the U.O is greater than 90. Ultimate oscillator also helps in providing possible indications whether the market will go up or down in succeeding candles. This is done by the concepts of Bullish Divergence, Positive/ Bullish Reversal, Bearish Div ergence and Negative/ Bearish Reve rsal. Positive reversal pattern, simply defined, a reversal happens when a stock shifts trends and begins to move against earlier price movement. A positive reversal joins the Low and Higher low points whereas the ultimate oscillator shows the opposite, which indicates the prices will go up. Whereas, negative reversal is just the opposite of it. Both shows that there is going to be reversal in orice movement. Bearish divergence pattern is when prices increase to a new high while the oscillator stagnates rather than rising to a new peak, bearish divergences indicate possible downtr ends. Currently, the bulls are losing control of the market, prices are only increasing due to inertia, and the bears are prepared to regain control and bullish divergence depicts the opposite. For a Buying Signal: First, a bullish divergence must form. This is when the price makes a lower low but the indicator is at a higher low. Second, the

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first low in the divergence (the lower one) must have been below 30. This means the divergence started from oversold territory and is more likely to result in an upside price reversal. Third, the Ultimate oscillator must rise above the divergence high. The divergence high is the high point between the two lows of the divergence. For Selling Signal: First, a bearish divergence must form. This is when the price makes a higher high but the indicator is at a lower high. Second, the first high in the divergence (the higher one) must be above 70. This means the divergence started from overbought territory and is more likely to result in a downside price reversal. Third, the Ultimate oscillator must drop below the divergence low. The divergence low is the low point between the two highs of the divergence. Another popular and well-known momentum indicator in technical analysis is the relative strength index (RSI). The Relative Strength Index (RSI) is a tool that may be used to detect overbought and oversold circumstances in an investment. The indication is displayed on a scale of 0 to 100. A rating of more than 70 indicates that a security is overbought, while a reading of less than 30 indicates that it is oversold. This indicator aids traders in determining whether the price of an asset has been artificially pushed to present levels and whether a reversal is imminent.

Source: Google
Details: RSI graphs
RSI = 100 – 100 / (1 + RS).
RS = Average Gain / Average Loss.
Average Gain = Sum of Gains over the past 14 periods / 14.
Average Loss = Sum of Losses over the past 14 periods / 14
In this case, RSI can be based on any number of periods, though Wilder recommends a default of 14. When compared to long-term trading, the number of periods employed for short- and medium-term trading will be less. For short- and medium-term investments, 9-day RSI and 14-day RSI are typically employed, while long-term investments may be made using 56 day RSI, 100 day RSI, and 200 day RSI. When making a long-term investment, a lengthy period of time will be taken into account. The most popular type of technical analysis is trend lines. They're also possibly one of the most underutilized. They can be as accurate as any other method if drawn correctly. Unfortunately, most traders draw them incorrectly or attempt to make the line match the market rather than the other way around. An uptrend line is formed along the bottom of plainly recognized support regions in its most basic form (valleys). The trend line is formed along the top of plainly recognized resistance points in a decline (peaks). All these terms combined together form a strong base for any investor to analyze any investment opportunity in Indian stock market.

CONCLUSION AND RECOMMENDATION

Both fundamental and technical analysis have its importance for any new trader to enter into such volatile maker such as Indian stock market and convert it into an opportunity. Fundamental analysis will need a person to be financially literate and have much more understan ding of the accounts whereas technical analysis can be used for small traders. The five ratios that were discussed affects the investors decision whether to buy the stock or not as it depicts the company's performance and give a better view whether the organization has strong financials or not. There are many more financial ratios that can be used but these five have most significant impact on any organization's financials. Technical analysis is a bit easier to understand and intradaytrading can be done more easily by an investor. For understanding and identifying an investment opportunity an investor should always trade without risking everything. Stock market is a platform which gives people profits in a very short span of time as well as can hit a person's financials very deeply. For a good portfolio it is always advisable to invest in different stocks by investing in diverse caps like large cap are for risk averse individuals, mid cap gives better returns and low cap are highly risky.

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