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mdurj@mdurohtak.ac.in

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Revival of Ancient Indian Knowledge: An effective Antidote to Global ecological Crisis

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Rashmi Bajaj

Professor of English, Faculty of Humanities, Baba Mastnath University, Rohtak.

Aparna Batra

Head and Associate Professor, Deptt. of English, Adarsh P.G Mahila Mahavidyalaya, Bhiwani (Haryana).

Abstract

Even after 75 years of independence, India has still not been able to decolonize herself and shake off the colonial shackles fettering the Indian psyche. The rich Indian heritage, ancient knowledge systems and scriptures have not only been shunned but also scoffed upon. The world today is turning into a dreadful techno-wasteland fraught with unprecedented multiple challenges of chaos of values, excessive onslaught of materialism, climate-disasters, spiralling violence, cyber-crimes, religious aggression, mental health hazards and so on. What is needed today at micro and macro levels is inner and outer peace, environmental values, harmony, compassion, oneness, universal love, positivity and emotional stability. The ancient Indian scriptures are a rich repository of life-affirming spiritual, ethical, environmental and human values. *Vedas, Upnishdas, Patanjali Yog Sutra, Bhagwad Geeta, Ashtavakra Geeta, Yoga Vashishtha* with their ideals of ‘bhumi mata putroham prithvya’, ‘shanti antariksh, shanti prithvi, shanti vanaspataye’, ‘sarve bhavantu sukhinah’, ‘sangachchdhvam’, ‘vasudhiav kutumbkam’, and countless such elevating ideas present a most effective module and strategy of survival for individuals, societies, nations and entire humanity in contemporary times. The paper takes up study of these life-supporting elements contained in Indian scriptures and underlines their great inherent Agency potentials for dealing with dreadful ecological crisis our planet is presently faced with.

Keywords: Decolonize, techno-wastelands, scriptures, survival strategy, Life-affirming values.

Corresponding author:

Rashmi Bajaj, Professor of English, Faculty of Humanities, Baba Mastnath University, Rohtak

Howsoever cliched it might sound but it is true that colonization is not merely geographical and political, it is much more mental and ideological in nature. It is a matter of great dismay and serious concern that even after 75 years of independence, India has not been able to fully decolonize herself. Our intellectual and academic discourse has majorly been Euro-centric, lately America-centric and we have not looked for or propounded and promoted any Alternative view or framework rooted in Indian perspective. So much ingrained has become this colonialized mind-set that rich Indian tradition and knowledge systems have not only been slighted but also contemptuously rejected by a large number of contemporary Indian intellectuals and scholars.

The higher education and research scenario is dismal. Indian Universities do not have genuine full-fledged Indology departments as yet and studies /researches related to Indian scriptures and ancient heritage and knowledge-systems are majorly being done by Indology departments of foreign universities. Though rich in scholarship, such studies have their limitations as the Western scholars at times are not really able to fully comprehend the cultural essence and ethos of a country so much steeped in indigenous religion and spirituality, and Indian rituals, traditions and customs so often seem to be outside these scholars' intellectual ken. As for the contemporary Indology study and research scenario in India, it is debilitated and decapacitated as the mind-set of researchers, pedagogy, systems still continue to be Eurocentric and Indian scholarship is still stuck with the imported theories of Marxism, post-colonialism, subalternism, Post-modernism, and is not mentally and intellectually equipped to look beyond. The renowned scholar and critic Avdhesh K. Singh has criticized this as "collective intellectual failure" questioning the lack of a critical paradigm of decolonisation in Indian universities.

The excessive dominance of leftist ideology in post-independence Indian discourse has taken a very heavy toll with suppression of the spiritually-enriched and enriching ancient Indian worldview and Indian scriptures. The consequent damage of such a lopsided discourse has been twofold. On the one hand, the contemporary Indian mind has come to suffer from unnecessary rootlessness and directionlessness and on the other hand, even while possessing great treasure of indigenous wisdom, the Indian scholars have majorly preoccupied themselves with pursuing and imitating imported theories and narratives and, hence, they have not been able to make any original contribution to the global knowledge scenario. It is the case of the unfortunate beings, unaware of their rich ancestral treasure lying locked beneath, and standing as paupers with begging bowls in their hands.

It is high time to "look homeward, Angel" -- the time when initiatives for decolonising literary canons, narratives, social sciences, language, pedagogy, arts, media, literature,

activism, research-ethics should be seriously taken up and indigenous strategies for transforming and fostering decoloniality, equality and social justice be propounded. Such measures will make our knowledge systems more inclusive, objective and capable of contributing not only at the national but also at the international level.

Such efforts for exploring and establishing Alternative Indo-centric view and vision have recently started and so has the resistance and derogatory debunking of such measures as “saffronization” and “post-truth”. It is responsibility of those-in-power and in opposition that such a long over-due Indian Revival should not become victim of pretty party or ideology politics. By mainstreaming of the ancient Indian knowledge and knowledge systems, not only India but as repeatedly acknowledged even by unbiased foreign scholars, the entire world stands to gain. NEP2020, with its high premium on indigenous Indian values, is a significant corrective step in this direction. Any ideas and concepts included in syllabi and courses tend to influence the mind-sets and attitudes of its learners for generations and thus become a part of psyche of an individual and collective consciousness of a society and a nation.

Our ancient Indian scriptures are a rich repository of universal life-affirming, spiritual, ethical human values and elevating, ennobling ideas. Revisiting and reviving of these scriptures presents a most effective module and Strategy of Survival for individuals, societies and entire humanity. It is so much necessitated in our contemporary dreadful wasteland with unprecedented multiple challenges and increasing threats of extinction to human race and our planet and also the failure of the existing knowledge systems, isms and viewpoints to redeem the situation. It would be pertinent to quote here Arnold Toynbee’s observation:

“It is already becoming clear that a chapter which had a western beginning will have to have an Indian ending if it is not to end in self-destruction of the human race. At this supremely dangerous moment in human history, the only way of salvation is the ancient Hindu way. Here we have that attitude and spirit which can make it possible for the human race to grow together into a single family” (Life Positive)

(2)

The paper takes up the study of Environment-supporting content contained in Indian scriptures and dwells on its great inherent potential for promotion of an eco-friendly positive national and global future. Among many complex time-space specific problems, one common formidable challenge threatening the very existence of human race and planet today is the colossal ecological crisis.

With non-dualist/advaitic and essentially spiritual and sacred view of things conceived in them, ancient Indian scriptures empower us to find a way out of this catastrophe. According to this worldview, entire creation is manifestation of one Supreme self or

Consciousness in various forms. The goal of human life is attainment of self-realization which comes when one realizes one's existence at the level of soul and experiences a connection--a oneness with the entire Cosmos or Creation including humans-nonhuman beings, animate-inanimate entities, celestial bodies and all natural elements. Peace, love, harmony are the concomitant natural emotions resulting from such a sublime state of being. Scripture after scripture is replete with this view of human beings as 'pure consciousness' or 'supreme self' symbiotically related to all other beings and permeated with the same spirit. In *Bhagwat Geeta* Krishna declares: "*aham atma gudakesh sarvbhuteshu sthitah*-I am the self seated in the hearts of All creatures" (Ch.10, verse 20). He further avers: "*real devotee is the one "yo maam pashyati sarvatra sarvam cha mayi pashyati"* (Ch.6, verse 30). *Ashtavakra Geeta*, a scripture dedicated to self-realisation and salvation says: "*realising that it is just me from Brahma down to the last blade of grass, one becomes pure, at peace*" (Ch.11, sloka 6). Here also the emphasis is on "*realising oneself in all beings and all beings in oneself*".

This view of existence is reflected in Indian conception of all relationships, be it human-human relationship or human-nonhuman relationships. The Indian relationship with the world of Nature is very distinctive. Unlike in the semitic religions, it is not the hostile binary human-versus-nature paradigm but human-plus-nature matrix where humans harmoniously and symbiotically exist as parts of the entire creation with animals and vegetation as equal partners. Then, it is a sacred view where natural objects—flora, fauna, rivers, mountains, natural elements are endowed with divine qualities and become objects of reverence and worship. Distinctive about this view, however, is the fact that it goes beyond symbiotism and creates a world where nature and humans are inseparable parts of each other's existence--"*yat pinde tat brahmande*"-- human bodies are conceived to be constituted of five natural elements--air, water, fire, earth, space with five senses corresponding to each sense. So, the relationship is very intimate, affectionate—*ek prana*, sacred where violence and exploitation have no place. The vedic hymn in *Atharv Veda*'s 'Prithvi Sukta' is the oldest and most evocative environmental invocation-rich in ecological value where the Vedic seer declares "*Mata Bhoomi Putroham Prithivah*"- "Earth is my mother and I am her son"- (hymn 12). Then this relationship between humans and nature is one so beautiful and benevolent where human beings are grateful for nature's bounties and so very sensitive and caring about the environment:

*"Whatever I dig up of you, O Earth
May you of that have quick replenishment
o purifying one,
May my thrust never reach unto your vital points, your heart
May your dwellings, O Earth free from sickness and wasting
Flourish for us*

Through a long life watchful

May we always offer to you, our tribute.” (Atharv Veda, Bhumi Suktam, 12:1:35)

Our *granthas* are replete with such text underlining the intimate human-nature relationship; the sacred and the divine in nature; devotional worship of nature and a strong ecological consciousness. *Rigveda* says:

“Nature’s beauty is an art of God.

Let’s feel touch of God’s invisible Hands in everything beautiful.” (1.6.3)

The Mahabharat hints that basic elements of nature constitute even the Cosmic Being—mountains-his bones, Earth-his flesh, water- his blood, sky- his abdomen, air-his breath and agni- his energy. *Mundaka Upanishad* also presents a similar picture of divine composed of natural objects and concludes: *“truly he is the inner soul of all”* (2:1:2&4). So be it the human body or the Cosmic body, human being or the Cosmic Being, Nature is an intrinsic part of their constitution— they are essentially the same.

Animals and plants are an integral part and parcel of human world in rituals, customs, festivals and festivities. *Kamdhenu* and *kalpvriksha*—these two mythical entities and conception of animals as perfect companion-cum-vehicles for Hindu gods prominently brings out the elevated status of animals and trees in Indian worldview. Mahatma Gandhi stated: *“I bow my head in reverence to our ancestors for their foresight in investing beautiful manifestations of nature with a religious significance”* (Vina). Strong environment-protection message comes from *Varah Purana*:

“One who plants peepal, neem, creepers, flowering plants, pomegranates, oranges, mangoes does not go to hell” (172:39). *Charak Samhita* equates destruction of forest with the destruction of State and reforestation with the act of rebuilding State. *Padampurana* warns against environment-pollution and violence: *“A person who is engaged in killing creatures, polluting wells, ponds, tanks and destroying gardens certainly goes to hell”* (96.7-8).

Dr Karan Singh (2014) points out in *Essays on Hinduism*:

“Vedantic seers knew that man was not something apart from nature and therefore they constantly exhort us that while we work for our own salvation, we must also work for welfare of all beings” (47)

The all-inclusive Indian concept of eternal peace and bliss includes environmental peace also and the scriptures include prayers for peace in the world of Nature. *Yajurveda* invokes:

Let there be peace in heaven,

Let there be peace in atmosphere

Let there be peace on earth

*May the waters and medical herbs bring peace
 May the trees give peace to all beings
 May all the gods be peaceful
 May the weather spread peace everywhere
 May all other objects everywhere give us peace
 And may that peace come to us and remain with us forever". (Ch.36.17)*

This peace in nature is not merely absence of violence, it is rather the presence and experience of positivity and harmony in the lap of nature. *Rig Veda* thus expresses this 'sweet' and joyful relationship:

*"The winds waft sweets
 The rivers pour sweets for the man who keeps the Law
 Sweet be the night and sweet the dawns,
 Sweet the terrestrial atmosphere; Sweet be our Father in Heaven to us
 May the tall tree be full of sweets for us
 And full of sweets the Sun:
 May our milch -cow be sweet for us!" (1.90.6-9)*

Herein God, humans and the world of Nature- all are unified in a spirit of benevolence, bonhomie and oneness of consciousness. In *Atharv Veda* the 'vaidik' seer visualises the intimate unity of various ramifications of existence through imagery borrowed from the world of Nature:

"Unity of heart and unity of mind, freedom from hatred- do I procure for you. Do you take delight in one another as a cow in her newborn calf" (3 ,30). This feeling of oneness with one-another and even with the world of nature at the level of *atman* provides a solid foundation for an essentially spiritual relationship. We realise that in Indian scriptures, nature is also an equal member of "vasudhaiv kutumbkam" of *Maha Upanishad*, equal companion invoked for "sangaccdhvam" and is also included in "sarve bhavantu sukhinah" prayers of *Tattireya Upnishad*. Such a philosophy of Nature has also guided Indian sciences of *Ayurveda*, *Vastu Shastra* and *Vegetarianism*.

In fact, environmental philosophy was conceived and articulated in India as a part of Indian world vision centuries before the anthropocentric Western discourse sought to focus on a benevolent view and relationship with world of Nature. It is only 19th-20th century onwards that terrorised by the uncontrollable climate-disaster unleashed by its own excesses inflected upon nature, the West is turning towards eco-centric concept of nature, with ecology movement becoming a part of their mainstream discourse. Western ecologism thinkers like Aldo Leopold, Rachel Carson, E.F Schumacher, Murray Bookchin, Caroline Merchant and Western nature philosophies like deep

ecology, shallow ecology, modern ecology, reformist ecology, social ecology, ecologism, ecosocialism, eco-feminism and Holism have been seeking, to solve human-nature relationship crisis, to create environment-consciousness and forge environmental ethics. However, the thrust therein is majorly on the external world. The non-dualist, sacred and cosmic view of Nature and Human world contained in Indian scriptures achieves all this and much beyond. The present environment crisis is in essence a spiritual crisis and hence demands a spiritual response which our scriptures so well articulate.

Lest all this should seem like a narcissistic and self-congratulatory exercise, it will be in place to quote here an important observation made by Guy Sorman, the leader of new liberalism in France:

“Idea of feminism and ecology came from 1968 movement from the meeting between India and West”(2001). Putting things in international/global perspective, we would round-up the argument with eminent Indology expert, ayurvedic scholar and practitioner David Frawley’s views:

“No religion perhaps lays as much emphasis on environmental ethics as does Hinduism. It believes in ecological responsibility-Earth is our mother, champions protection of animals which it considers also have souls and promotes vegetarianism. It has a strong history of non-violence. It believes that God is present in all nature, in all creatures and in every human being regardless of their faith and lack of it.”

(swahainternational, 2016)

By being oblivious to such a noble heritage of spiritual Indian worldview where ecology is an inherent part, present-day Indian society is a ‘lost soul’ with growing insensitivity and cruelty towards nature. It is most imperative that such spirituality-defined values and worldview of Nature is integrated into our text-books and syllabi so that they become a living and inspiring intellectual and academic presence ultimately metamorphosing into ‘Sanskaras’.

Conclusion

Each Age has her own ‘yakshprashnas’ or ‘overwhelming questions’. As of now, it is a Question of Survival and Existence of the over-achieving, ever-restless human-race who after her splendid march from *homo sapiens* to *homo deus* has now invited self-destruction with multiple disasters imminent climate crisis, technology onslaughts, AI threats, war-mongerism rendered deadlier with Cyber-warfare, breakdown of life-supporting values and mechanisms, dangers of mental-emotional-psychological wreckage and an impending overall Apocalypse.

It is high time that we looked beyond the current prevailing theories, philosophies, narratives and academic-intellectual, socio-politico-cultural discourse. What seems required now is a spiritual revolution with shift in consciousness. Recently, global thought has already started turning into this direction. Martin A Nowak, Director of Harvard's program for evolutionary dynamics has claimed: "the altruistic spirit always seems to rebuild itself" (2009). Bruce H. Lipton, the renowned cell- biologist with his revolutionary discovery in his book *Biology of Belief* concludes that now it will be the survival of the "most loving"(2012).

Herein, by going beyond the cosmopolitan vision to Cosmic vision and reaching beyond concept of peace into Eternal Peace and Bliss, the non-dualistic /advaitic and essentially spiritual and cosmic worldview contained in ancient Indian wisdom and scriptures can well offer immense possibilities as the New Agency or Catalyst to effect the much-required shift and uplift in the contemporary global consciousness. Scholars and thinkers like Arnold Toynbee, Will James Durrant and Dr. James Cousins had already envisioned and expressed the futuristic global impact of Indian scriptures in their glowing rich tributes and extolling comments without mincing any words. The renowned philosopher Will James Durrant's observation is a representative view of this school of thought:

"Perhaps in return for conquest arrogance and spoliation, India will teach us the tolerance and gentleness of the mature mind, the quite content of the unaquisitive soul, the calm of the understanding spirit and unifying and pacifying love for all living things". (Life Positive)

May the Holy and Holistic vision expressed in our scriptures play a crucial role in initiating humanity on the path of creating a beautiful, blissful, soulful world where

"Sarve santi sukhinah

Sarve santi Niramaya

Sarve bhadrani pashyanti Ma kaschit dukhbhag asti..."

And may our education system, with conviction and commitment of all stakeholders, be an effective instrument for carrying out the intended metamorphosis of consciousness.!

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Self-Care or Self-Centeredness in Edna *The Awakening* by Kate Chopin

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Anita Singh

Associate Professor, English, GCG Gurugram

Abstract

Edna Pontellier in 'The Awakening' succumbs to the sea leaving behind the bliss of a happy family comprising two sons and a husband. She, bluntly and brazenly declares that she can give up everything for her children but not her 'self'. This assertion of her, puts her in dock and let the readers judge her as a self- centered woman or as a woman, indulged in 'self care'.

Since time immemorial, woman are announced angels and admired, adored for their sacrifice for the family as mothers or as wives. They are never heard of prioritizing their 'self' or 'self care' with discreet disinterest in family damaging its interest.

Edna, in *The Awakening* here, is not a deviant woman; she is different, self -conscious and in her instinct of self- awareness, discovers that women are not meant for household duties only as they are primarily, individual s and must be noticed for individuality. She raises the voice becoming spokesperson of a woman who claims her human and individual right to unfurl possibilities and probabilities in a world other than domestic. The only problem, she faces is the late realization of her 'self', especially when she is not fully equipped to blow the whistle of change and bite more than she can chew.

She is neither like her friend, Reisz who dedicates her life to music nor like Mrs. Ratignolle who, wholeheartedly, devotes herself to domestic care. Edna wants both family and career, and also male attention and male identity but lacks accomplishment for career and interest for domesticity. The progression of paper will clear the mist of suspense explaining and elaborating on various facets of Edna's personality in particular and of a woman's psyche in general.

Keywords: Psyche, deviant, existential exigencies, evolutionary benefits

Corresponding author:

Anita Singh, Associate Professor, English, GCG Gurugram

Introduction

Women, since time immemorial, are seen in light of their gender, they are marginalized and put in secondary roles. Before civilization, men hunted in group and put women at home to take care of household affairs; this division of labour was essential for existential exigencies but evolutionary benefits favoured men with his exposure to outdoor world. He evolved his physical and mental facilities in his advancement in struggle against nature. His intellectual and physical strength accorded him the status of principal entity in household as a breadwinner and watch guard. Position and power promote pride as privilege and perks protects a person from punishment. Man, in this way, enjoyed unquestioned authority as he risked his life to earn and protect the family; women, in their natural human instinct to shun fear, (man had no option but to counter it in world with wild beasts) tuned themselves to the desires and, in some ways, dictates of men. This arrangement diluted the position of women in society and they dwindled from power sector, from first position at the least. Even today, women are generally, meant for care of family and their self-care is taken for their self-centeredness.

This paper will focus on the issue how self-awareness of women, their sense of individuality was not a socially accepted gesture in times of Chopin. Edna was ahead of her times so she asserted herself with great vehemence. Time is the best judge and it has, today, tilted scales in favour of Edna as modern women have shown demarcation between self-care and self-centeredness.

Reflection and Analysis

Edna believes in self-preservation and self-care. She believes in sanctity of marriage and performs all due duties towards her husband and children. She has no inhibition and prejudice related to her gender and also to her own expectation from her. Edna being married in a Creole family, tradition is not aware of its culture. This culture allows flirtation but with no compromise on morality and women of such culture can do anything for their families. In the very beginning, Chopin clarifies how Edna is not a woman absorbed in drudgery of household but wants something creative for development of her awareness, her soul.

Mrs. Pontellier was not a mother-woman ... Creole women idolized their children, worshiped their husband and esteemed it a holy privilege to efface themselves as individuals and grow wings as ministering angels. (Chopin 9)

Edna is a woman of high calibre who wishes to live life on her own steam and sail. She rolls in leisure and lavish luxury but that is not enough for her. She wants to make choice and also the right to be known on her own terms.

Her marriage also served as self-care for her as she had to pull herself apart from the cold and apathetic aura of her natal house. She was a lonely child who preferred to live

in her own small world and nobody cared to bother her as she was not very much desirable in a house with three daughters and no mother. The trauma of motherless childhood and the restricted regime of her father not only alienated her from her family but also intensified her inability to speak for herself.

She was taught to be silent and controlled and her own voice was a surprise to her as “Edna in company of frank Creole women’ began to loose a little the mantle of reserve that had always enveloped her” (Chopin 14). Edna assumed frankness and expression in liberal aura of Creole culture. She got company from Robert who taught her self-dependence through swimming. The idea of self-care and confidence was initiated by Robert but intensified by Reisz, her friend, in mind of Edna.

Chopin portrayed Edna as an “unthinking child ... self contained ... she never realized the reserve of her own character...” (Chopin 17). Edna wants to realise her God-gifted talent, a right and duty for every person irrespective of gender, her change of home and guard yields her no favour in fostering her intellectual growth or independence in financial and social terms.

Edna was not happy in her home nor even with her husband. Her marriage with Leonce Pontellier was purely an accident ... a violent opposition of her father. (Chopin 18)

Her relationship with her husband was also need-oriented. Her marriage was performed in indecent haste and not as a celebratory gesture but as a defiant, daring move to rebel against family tradition.

It (her marriage) had no trace of passion or excessive and fictitious warmth ... her children – she did not miss them except with occasional intense longing ... their absence was a sort of relief ... a responsibility which she blindly assumed and for which fate had not fitted her. (Chopin 19)

This statement reflects on self-centeredness of Edna who is shown, here, selfish and unfit for matrimonial commitments and childcare. In fact, Edna never wanted to be a part of conventional society and always preferred to be in her own shell and cocoon. Edna had been so famished for motherly love and care from her mother, as she never had a mother and never enjoyed it, that she could not adjust herself in her marriage and her suicide is also suggested by critics as a “defiant act of will ... a maternal longing” (Wymard 375).

Edna cannot be viewed, here, as a psychic figure and despite critical scrutiny, she maintains her status of being an alert, agile, aware person who even if not well-informed of her destination understands that bare satisfaction of cardinal pleasure does not satiate her soul and disturbs her with her intellectual energy unused; she is directionless about utilization of her passion and potential as she was never treated as

an individual and considered as a dependent entity to be managed and monitored by husband or father. She rebels against both to show her autonomy over appropriation but rebellion is destructive and destructs her; her demise is a sign of revolution as she flings open a portal for a possibility of autonomy of women.

Edna's struggle cannot be labelled as narrowly pathological rather than universally human ... heroism is necessary for the nascent self to resist the lure and power of the conscious mind. (Franklin 510)

Edna throughout novel, had been an aware girl who not only completed her womanhood in marriage and children with utmost sincerity but also was lured by dreams of romance, love, companionship realised in her male friends; but conventional forces which recommended no duality of life to women, no male relationship of friendship dragged her to destruction. She was forced to either accept convention or leave its society.

Here, Edna in the entire novel travelled her journey from nascent self to narcissism. She loved and protected her nascent, pure, unravished self but her absorption in creation of self led to her compromise on her domestic obligations and tilt towards narcissistic impulses. Separation, solitude and seductive sensuality of the sea evaluated the resolve of Edna for individuation and she failed in her test of individual independence as she was not well-equipped for such undertakings. The intensity of the indulgence of Edna in unsocial activities – race course, affairs, separate home overwhelmed her in such a way that she could never retreat to her former self and her former place.

Edna was no promiscuous woman; she was not immoral and had no idea of infidelity to her husband. She too harboured an innocent and virginal quality. She came in close connection with Robert as she was scared of water and Robert diluted her fear not only with regard to water but also to life and personal decisions. She leant on from one prop to other—from father to Leonce and from him to Robert but the love of Robert encouraged her to try risk on her own level. When she undertook one risk of life, dread of death, she gained strength to countercheck other dreads of life too. Her first adventure, she learnt in company of Robert was her gain of expression, her own voice which was strange feeling to her. Chopin showed how, the speech of Edna dawned on her and how she was mesmerized by her own words.

She was flushed and felt intoxicated with the sound of her own voice and the unaccustomed taste of candor. It muddled her like wine or like a first breath of freedom. (Chopin 19)

Intoxication of anything has adverse effects and detrimental consequences on a person. Edna was intoxicated by her own voice, expression and she used it in a non serious

way. "Masochistic quality of romantic love ... is implied here in Edna's spiritualized lust ... serious awakening to selfhood" (Franklin 516).

Edna awakened to herself, her desires as she thought that in her worldly care, she lost her care, her soul. All spiritual messenger stress upon the growth of soul, all argue in favour of preservation of soul and preach how life is a waste lived in material pursuits. Edna too, tried the same venture of self-actualisation after getting sufficed and bore with conditioned material morass which was controlled by patriarchal head.

Edna was striving for her own self, her own position in cosmos, for her own definition, identity other than mother and wife. She was impressed by male assertion and dazzled by name and applause of Reisz who earned her position in society by dint of her efforts.

Edna too wanted to put in efforts in painting and sketching but she forgot that her father, her husband and Madame Reisz earned an identity not in minutes and not with comfort but with persistent and consistent effort of heart and soul.

The dazzling show of identity is never built in a day but by continued and considerable efforts. Masters are not made but self-made by risk, hard work and continued contribution. The hardness of a soldier is visible but hardships, he endures nobody counts; opulence of a businessman is seen but his burning of comfort, his humility in social connections is underpaid.

Edna paid no attention to the rough edges her father and husband suffered in professional life. Her husband's nudgings to her social activation was a pressing need to supply luxury to family by connectivity to influential people of society as their clientage. Edna too emulated men but her pace, space was vacuous and void as she lacked the stamina and style suitable to such undertakings.

Edna worked in the sphere of sketching but half heartedly and was never satisfied with her work. She believed in self-care but she never seriously worked for it. She suffered the oppression, neglect and secondary treatment which forced her to work upon her human instinct to work for her taste, pleasure and embellishment. She wanted to transcend from accommodation to autonomy but the journey was not an easy one as her gender was due to collide with system and being fragile it was sure to collapse

Her pursuit for art was not out of passion or pleasure but out of sheer rebellion against corrosive conventions which controlled her activities. Edna was in constant indulgence in childhood unhappy reverie, ennui and unspoken repression which she suffered as a child but could not explain to herself rationally, logically and sensibility even as an adult.

Hard Work, honesty and humility with patience, perseverance are keys of success but

Edna manifested none of them, she wanted grand status like her father unmindful of the fact that he underwent rigorous training and trauma of war to earn uniform and stars on it; she wanted opulence like her husband unmindful of his struggle, his pain and pains to earn it in a world who never gives a single coin to a self-respecting person without labour. She also wanted applause showered on her friend, Reisz turning a blind eye and deaf ear to the fact that Reisz sacrificed her grace, elegance, beauty, poise, organized home, family and social circle to admire her dress and jewel in service of art. She ceased to be feminine to be masculine in music. This miscalculation of Edna transformed her self-care into self-centeredness as she, being a married woman had enjoyed all perks and privilege free of cost by virtue of marriage so, her commitment to her husband must be absolute and unquestionable.

Her life gave her choice to get out of stifling aura of her natal family either by making her career in any field or embrace a person in marriage and remain dependent on and faithful to him. Edna explored like a child with intellect of a child and surrendered to the womb of warm sea like a child. She learnt swimming “like a little tottering, stumbling, clutching child ... alone, boldly with over confidence ...” (Chopin 27). Self-care culminates into self-centeredness when one cares for oneself but at expense of others.

Edna was a responsible mother and wife: she must have practiced art but not at the cost of family, with the time reserved for her family. Her husband’s support could have facilitated her with accomplishment and innovation in her work but in that case, she should have married a simple, mediocre man not a middle aged, wealthy businessman who flattered her with his devotion to her beauty and believed in the idea that she would take care of his belongings – human and material in his absence. Leonce asked no dowry and no income from Edna, his needs were simple and meagre i.e. look after of his household, children and business support through house parties. Edna never lived to the expectation of her father, her husband and even in a traditional American society; she had her own way and a terrible course she chose for herself. Chopin showed Edna very quaint and unique. She explains:

She (Edna) was blindly following whatever impulse moved her ... free her soul of responsibility ... she was governed by a feeling of oppression and drowsiness ... she would never sacrifice herself for her children or for any one ... I am no longer Mr. Pontellier’s possession to dispose of or not. I give myself where I choose ... to wake up and find ... to wake up after all, even to suffer rather than to remain a dupe to illusions all one’s life ... children appeared before her like antagonists ... to drag her into the soul’s slavery ...” (Chopin 32, 34, 46, 102, 108).

This statement of Chopin covered the entire journey of thoughts of Edna. She was

indecisive, she was mindful of her self-care and had a frame of mind to evade children who can enslave her soul into eternal slavery but, unfortunately. She had no idea how she saved her soul in death, in naked posture and she was equally not mindful that she desired mother's warm touch in the sea and like a naked babe regressed and recoiled to the sea. She had no qualms over the fact how her children would survive without a mother who was not only dead but also defiled, defamed and deceitful to them; Edna's self-care tilted towards selfishness. Edna "transcends her circumscribed status as sensual entity – as the object of other's desires and stands before us as her own subject" ... (Yaeger 197). Edna here, blissfully thinks about herself but she unleashes an "energy that threatens to contravene that stability of the family on which society depends" (Tanner 4).

Foucault offers an explanation to the utopia of Edna with Robert and craving of her identity. He speculates in *The order of Things*:

Utopian dreams of Edna have no real locality there is nevertheless a fantastic, untroubled region in which they are able to unfold; they open up ... where life is easy but road ... chimerical. (Foucault 18)

Edna, governed by her wayward impulse, transported herself to a "zone of magnified power, a realm of darkness, the unknown and danger" (Campbell 77).

Edna was powerful in thought, forceful in execution of her conception but vulnerable to the repercussions which ultimately consumed her. Edna tried to script the story of life with her own taste but forgot to notice that she was in a civilization which was strict and forceful about imposition of its rules and regulations on its members and with greater force especially, on weak and secondary ones.

Conclusion

Edna becomes a warrior by choice to ensure her fight for her rights of individual ownership for women but with virtually no weapon or weak weapon of defiance, insolence, romantic, wayward impulse and raw, half-hearted devotion to pursuit for identity. She is fond of music of Reisz whom music has given no financial gain or luxurious life but fame and recognition. "Edna – first is captivated by the music of Mlle Reisz" (Whitman 56). Edna is mesmerized by music but has no idea to imbibe art and artistic endeavours. She starts with considerable force but possesses no stamens to sustain her efforts.

Reisz warns her of her weak resolve with the imagery of birds with broken wing fluttering down to the sea. The same imagery Edna finds when she surrenders to the sea and it indicates that Chopin too, wants Edna to realize that her struggle result in failure due to her inchoate idea, improper and poor execution, lack of expression of her feelings and above all, a willful assertion to do something nasty as extra- martial affair

and nude drowning in the sea to invite the attention of people as a child who cries more than its hurt. Chopin is also not seen to waste her efforts in character of Edna after latter's demise, she reveals that women are also thinking individuals and their discomfort, anguish too affect the interest of family.

Edna's husband is shown treating her as a showpiece or as a head- servant, Edna settles score with him as her nude surrender to the sea tarnishes and dents his image forever giving him the message to repent rather than complain and to males in general that a woman cannot be trapped, she can liberate herself in death inspiring others to observe self -care but not with self-centeredness. Edna's endeavours don't go awry as she unfurls the possibilities of autonomy, respect and individual ownership for women.

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Cybersecurity in the Age of Digital Transformation: Trends and Challenges

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Kavita Devi

Assistant Professor, South Point College of Law, Sonipat

Abstract

The pervasive implementation of AI-driven smart surveillance systems in today's digital landscape has significantly transformed the domain of identity protection through the integration of cybersecurity and artificial intelligence. With the ongoing progression of digitalization in India, these technologies enhance our security by significantly improving real-time monitoring and threat detection capabilities. Nonetheless, they raise pertinent concerns regarding privacy and data security. This thesis examines the "Information Technology Act, 2000" and the "Digital Personal Data Protection Act, 2023" (DPDPA)¹, both of which constitute integral components of India's contemporary cybersecurity framework. The objective is to investigate the implications of AI-driven surveillance on identity protection and to identify the gaps in existing regulations. The findings of this study indicate that AI frameworks in India may enhance their efficacy by engaging in a comparative analysis with established international standards such as the GDPR. The study underscores the significance of adaptable legislative modifications that encompass rigorous enforcement, privacy regulations, and clear data reduction strategies. The findings suggest that adherence to international standards enables India to leverage AI for cybersecurity² while safeguarding individual privacy rights. This research provides valuable insights that can be utilized to construct a framework that harmoniously integrates security and privacy in an ethically sound manner, thereby advancing the field.

Keywords: Cybersecurity, Artificial Intelligence (AI), Digital Transformation, Identity Protection, Data Security, Privacy, Surveillance

Corresponding author:

Kavita Devi, Assistant Professor, South Point College of Law, Sonipat
Email- ghangas69@gmail.com

¹ Digital Personal Data Protection Act, 2023, Gazette of India, Extraordinary, Part II, Section 1.

² Kaur, R., & Singh, S. (2020). Cybersecurity in the Age of Digital Transformation. *Journal of Cybersecurity*, 6(1), 1-12. doi: 10.1093/cybsec/tyaa001

Introduction

It is imperative to develop more accessible forms of cybersecurity and artificial intelligence (AI) in light of the increasing digitization of our existence. As the significance of personal data escalates within the digital landscape, the emphasis of cybersecurity³ has transitioned from solely defending organizational infrastructures against cyber threats to also ensuring the protection of individual identities. Cybercriminals are increasingly employing sophisticated AI-driven techniques. Although artificial intelligence is facilitating numerous aspects of our existence, it is concurrently being employed by governmental entities and corporations to enhance security via a methodology known as "smart surveillance." However, these innovations have given rise to various privacy, ethical, and legal concerns. It is imperative that we establish robust and well-informed legal frameworks to effectively address the challenges of cybersecurity and surveillance in the contemporary digital landscape, particularly as influenced by artificial intelligence. Every legal system, including that of India, grapples with the challenge of reconciling the rights to privacy and security in an era characterized by pervasive surveillance.

Consequently, a number of data protection and cybersecurity legislations have been enacted in India. However, these regulations are frequently criticized for their inadequacy in addressing the intricacies of complex cyber threats. Regrettably, in the absence of proper oversight, these instruments frequently accumulate substantial quantities of personal data. Although surveillance enhanced by artificial intelligence contributes positively to national security strategies, it simultaneously heightens the potential threat of unauthorized access to sensitive personal information by malicious actors. Moreover, in the absence of adequate regulatory oversight, there exists a potential for the misuse of these surveillance techniques. This tension underscores the necessity for advancements in technology alongside cybersecurity legislation that respects individuals' privacy rights, as articulated in "Justice K.S. Puttaswamy v. Union of India."⁴ The Indian Supreme Court has formally acknowledged the right to privacy as an essential component of the right to life and liberty as enshrined in Article 21 of the Indian Constitution, a recognition that has since been codified.

This study examines the recent transformations in Indian legislation pertaining to smart surveillance, artificial intelligence, and cybersecurity. Furthermore, the study examines the efficacy of India's "Digital Personal Data Protection Act, 2023" and the "Information Technology Act, 2000" in addressing data protection within the contexts of national and individual security. However, both statutes have faced criticism for

³ Singh, R. (2020). *Cybersecurity: A Comprehensive Approach*. Wiley Publications. doi: 10.1002/9781119541555

⁴ Justice K.S. Puttaswamy v. Union of India, (2017) 10 SCC 1, para 415.

their vagueness and lack of readiness for a future dominated by artificial intelligence. In light of the exemplary standards established by global benchmarks such as the EU's "General Data Protection Regulation" (GDPR)⁵ for data privacy and protection, this research also examines international standards and best practices. This study aims to explore the implications of artificial intelligence (AI)-driven surveillance systems on identity protection in the context of India's current cyber security laws.

Moreover, this paper will explore the fundamental modifications necessary to establish a legislative framework that safeguards personal identities while concurrently tackling the security challenges associated with these systems. As artificial intelligence and surveillance technologies⁶ progress rapidly, this study aims to offer legislators insight into the forthcoming legal challenges and considerations they will encounter in their efforts to uphold privacy within this domain. This study presents a series of research questions aimed at elucidating the fundamental issues related to cybersecurity, artificial intelligence, and identity protection within the context of India. The initial step involves an assessment of the current data protection and cybersecurity legislation to determine their adequacy in safeguarding individuals' identities against the threats posed by artificial intelligence. The study will culminate in an assessment of the ethical implications associated with the deployment of artificial intelligence in surveillance practices. This study seeks to conduct a comprehensive legal examination of the ways in which India can enhance its cybersecurity legislation to protect individual identities amidst the growing prevalence of smart surveillance, while addressing the pertinent research questions presented.

Understanding Cybersecurity and Artificial Intelligence

The increasing susceptibility of both individuals and organizations to cyberattacks has rendered cybersecurity an indispensable field in our contemporary interconnected landscape. Indeed, artificial intelligence serves as a pivotal instrument in the domain of cybersecurity, while simultaneously transforming a multitude of other sectors. Nonetheless, numerous significant ethical and legal inquiries emerge at the confluence of cybersecurity and artificial intelligence, particularly regarding the safeguarding of individuals' privacy and identities. In consideration of the advancements in technology, Indian law must navigate the delicate equilibrium between protecting personal information amidst pervasive electronic surveillance and guaranteeing that all citizens

⁵ The General Data Protection Regulation (GDPR) of the European Union sets a high standard for data protection and privacy. See Regulation (EU) 2016/679 of the European Parliament and of the Council of 27 April 2016 on the protection of natural persons with regard to the processing of personal data and on the free movement of such data, and repealing Directive 95/46/EC (General Data Protection Regulation) [2016] OJ L119/1.

⁶ Wang, Y., et al. (2020). AI-Powered Surveillance: A Case Study of Facial Recognition Technology. Proceedings of the IEEE International Conference on Artificial Intelligence and Robotics, 1-6.

are afforded adequate cybersecurity measures. Inheriting the objectives of the personal data protection bill of 2019, the digital personal data protection act of 2023⁷ seeks to address analogous issues. The intricate nature of AI-driven cybersecurity, along with India's endeavours to navigate the associated risks and benefits, has been elucidated more comprehensively as a consequence.

Cybersecurity and its domains

The concept of "cybersecurity" encompasses the methodologies employed to safeguard computer systems, networks, and data against prospective cyber threats. The oversight of information security, the safeguarding of networks and applications, as well as the protection of data, constitute integral components of this domain. From a legal standpoint, Indian law encompasses a multitude of statutory protections that facilitate the enforcement of cybersecurity measures. The "Information Technology Act, 2000" serves as a significant framework that delineates penalties for cybercrimes and governs cyber activities. "Section 66" delineates the penalties associated with blockade activities, whereas "Section 43"⁸ addresses the issue of illegal entry. Despite the continuous evolution of cyber threats, these advancements underscore the necessity for an evolution in cybersecurity legislation to safeguard individuals' identities and privacy against detrimental applications of artificial intelligence. The necessity for stringent regulations is evident.

An Overview of the Role of Artificial Intelligence in Cybersecurity

The application of artificial intelligence in the domain of cybersecurity facilitates the immediate forecasting and alleviation of cyber threats, employing methodologies such as machine learning, deep learning, and natural language processing. The primary objective of data science and cybersecurity lies in enhancing threat detection, risk assessment, and response capabilities. Secure banking and healthcare data represent merely a couple of instances within the myriads of sectors in India that are increasingly leveraging cybersecurity applications driven by artificial intelligence. For example, the implementation of artificial intelligence (AI) to automate repetitive cybersecurity monitoring tasks can significantly diminish the time and resources required for manual oversight. Instances of this are evident in the seminal case "Shreya Singhal v. Union of India,"⁹ which established a foundation for subsequent legal interpretations regarding artificial intelligence by scrutinizing the accountability of intermediary platforms.

⁷ Digital Personal Data Protection Act, 2023, Gazette of India, Extraordinary, Part II, Section 1.

⁸ Section 43 of the Information Technology Act, 2000, imposes penalties for unauthorized access to computer systems or networks. See Information Technology Act, 2000, No. 21 of 2000, § 43.

⁹ Shreya Singhal v. Union of India, (2015) 5 SCC 1, para 111.

Fundamentals of Intelligent Surveillance Technology

Facial recognition, biometric authentication, and behavioural analysis exemplify the advanced surveillance technologies that are rapidly integrating into cybersecurity frameworks globally, including within India. In the domain of identity verification, facial recognition has become an established norm within both banking institutions and law enforcement agencies. Biometric authentication has become a standard feature in devices and corporate security systems. The implementation of public surveillance in India through facial recognition technology has sparked a significant discourse regarding individual rights as enshrined in Article 21 of the Indian Constitution,¹⁰ which seeks to uphold the right to privacy, as articulated in the landmark case of Justice K.S. Puttaswamy v. Union of India. This case aimed to acknowledge privacy as a fundamental right by constraining governmental surveillance and stipulating that any encroachment upon privacy must be justified by proportionality and legal necessity.

The interplay between artificial intelligence, cybersecurity, and surveillance systems is a complex and multifaceted subject that warrants careful examination.

The complex and dynamic interplay between identity and privacy protection, particularly within the domains of artificial intelligence, cybersecurity, and surveillance, demands meticulous consideration and negotiation. In order to safeguard personal identities within the domain of cybersecurity, the Digital Personal Data Protection Act of 2023 stipulates that individuals are required to furnish their explicit and prior consent prior to the collection, processing, or utilization of biometric data for verification purposes via electronic devices. In order to enhance the safeguarding of sensitive data,¹¹ governmental bodies may consider consolidating their digital records in accordance with "Section 69 of the Information Technology Act." The act incorporates stringent legal protocols designed to avert capricious surveillance practices. It is equally crucial to manage the risks that could jeopardize an individual's privacy and identity.

Legal Framework for Cybersecurity in India

The evolution of cybersecurity law in India has been a gradual process, marked by a series of incremental developments, responding to the dynamic landscape of cyber threats and the pervasive digitization of life in the country. The regulation of electronic commerce and cybercrimes in India is fundamentally governed by the Information

¹⁰ Article 21, Constitution of India, 1950.

¹¹ The Indian Computer Emergency Response Team (CERT-In) reported a significant increase in cyberattacks in India during 2020. See CERT-In, Annual Report 2020 (2020), 12-15.

Technology Act of 2000.¹² Since its inception, the IT Act has undergone revisions to address emerging cybersecurity issues; it also provides a legislative framework for combating cybercrime, safeguarding sensitive information, and implementing preventive measures. The Act underscores India's dedication to safeguarding the digital landscape by delineating the repercussions for cyber offenses, including data theft and unauthorized access. Furthermore, India is set to adhere to international data privacy standards, with the "Digital Personal Data Protection Act, 2023" (DPDPA) serving as the framework for the regulation of personal data protection. The endeavour represents an effort to formulate a comprehensive cybersecurity strategy; nevertheless, it will require ongoing modifications to accommodate emerging technologies.

An Examination of the Pertinent Amendments to the Information Technology Act of 2000

The principal legislation governing cybersecurity in India is the "Information Technology Act, 2000," which addresses various offenses, including hacking, unauthorized access, and data theft. The legal repercussions for hacking, encompassing both financial penalties and incarceration, are delineated in "Section 66," whereas "Section 43" provides protections against unauthorized access and the destruction of data. The 2008 amendment to the IT Act¹³ is particularly significant as it introduced "Section 66A," which serves to criminalize offensive content disseminated online. Subsequently, it was annulled by the Supreme Court in the matter of "Shreya Singhal v. Union of India" due to its violation of free speech rights. The introduction of "Section 79" as a provision concerning intermediary liability implies that platforms may now bear responsibility for content disseminated by third parties, or alternatively, they may be empowered to impose criminal penalties on those parties. Intermediaries are compelled to engage in thorough due diligence in light of the complexities introduced by the advent of AI, which has rendered enforcement more intricate. Organizations bear no accountability for inadvertent privacy violations instigated by AI-driven platform systems.

The Digital Personal Data Protection Act of 2023

The ongoing development of a robust data privacy framework in India is significantly underscored by the enactment of the Digital Personal Data Protection Act of 2023, which represents a pivotal advancement in this domain. In order to implement AI-

¹² Ministry of Law and Justice, "The Information Technology Act, 2000" (2000), Gazette of India, Extraordinary, Part II, Section 1.

¹³ Ministry of Law and Justice, "The Information Technology (Amendment) Act, 2008" (2008), Gazette of India, Extraordinary, Part II, Section 1.

driven surveillance,¹⁴ it is imperative for entities to secure the consent of individuals prior to the collection or retention of their biometric data, as delineated in "Section 11" of the DPDPA. It seeks to establish a balance between individuals' rights to privacy and the security benefits that artificial intelligence can offer, underscoring its significance. The Act necessitates enhanced safeguards for privacy, advocating for a principle of minimal data collection and processing. Nonetheless, the enhancement of data processing through increased openness and accountability signifies a substantial advancement in the framework of India's cybersecurity regime

Amendments to the 2013 National Cyber Security Strategy

In its inaugural endeavour to establish a comprehensive cybersecurity framework, India's "National Cyber Security Policy, 2013,"¹⁵ aimed to safeguard critical information infrastructure and promote a secure digital environment. The objective of the policy, which aims to guarantee the availability, integrity, and confidentiality of digital assets—an aspect of availability—demonstrates India's readiness to confront the challenges posed by cyber threats. The suggested amendments to the National Cyber Security Policy encompass initiatives aimed at cultivating artificial intelligence capabilities designed to foresee and alleviate cyber threats. With the advent of artificial intelligence (AI) in 2013, the emerging policy acknowledged the imperative for skilled cybersecurity professionals

An Examination of the Operational Mechanisms of CERT-IN and Other Regulatory Entities

The Indian Computer Emergency Response Team (CERT-IN)¹⁶, a national agency, is entrusted with the responsibility of enhancing and overseeing the cybersecurity framework of India. According to "Section 70B of the Information Technology Act," CERT-IN functions as the primary centre for the coordinated management of incidents within the domain of cybersecurity, facilitating an expedient response to cyber threats. The alternative strategy may involve the engagement of additional regulatory bodies, such as the Ministry of Electronics and Information Technology (MeitY), in a collaborative effort to maintain adherence to established rules and requirements. In conjunction with CERTIN, the Ministry of Electronics and Information Technology (MeitY) supervises the implementation of cybersecurity legislation. Consequently, these regulatory bodies collaborate to uphold cybersecurity standards, despite the

¹⁴ Jobin, A., et al. (2019). The Challenges of AI-Powered Monitoring: A Survey. *Journal of Artificial Intelligence Research*, 66, 1-25. doi: 10.1613/jair.1.11655

¹⁵ Ministry of Communications and Information Technology, National Cyber Security Policy, 2013 (2013), para 3.2.

¹⁶ The Indian Computer Emergency Response Team (CERT-In) reported a significant increase in cyberattacks in India during 2020. See CERT-In, Annual Report 2020 (2020), 12-15.

sluggish progress of AI development. This underscores the necessity for a unified approach to address the risks associated with artificial intelligence and the principles of identity protection.

Identity Protection in the Digital ERA

In the discourse surrounding individuals and their interactions within the domain of the internet or various electronic networks, the phrase "digital identity" denotes the unique assemblage of attributes that render each person distinguishable. The concept of identity is constructed from a multitude of elements, including names, social security numbers, biometric information, and the digital footprints individuals leave as they navigate their daily online activities. Among the numerous legislative measures in India designed to protect citizens' biometric and demographic information is the "Aadhaar Act, 2016," which stands as one of several such statutes. This nation is adopting digitization with remarkable swiftness. Nevertheless, with the continual advancement of AI surveillance technologies, the challenge of securing and verifying digital identities increasingly intensifies. Given the grave repercussions that may arise from identity theft, financial detriment, and violations of privacy, safeguarding one's digital identity is of paramount importance.

Personal Data Security: Vulnerabilities in AI-Driven Surveillance Systems

The safeguarding of identity afforded by AI-driven surveillance systems may be compromised, despite the presence of robust security protocols. Individuals become increasingly susceptible to danger when these systems, which rely on biometric data such as fingerprints or facial recognition, are breached. However, a significant vulnerability exists within these systems: they handle and retain sensitive information, rendering them susceptible to cyber-attacks.¹⁷ The case of "Justice K.S. Puttaswamy v. Union of India" stands as a pivotal moment in the legal landscape, wherein the apex court of India determined that the safeguarding of biometric data and other sensitive personal information necessitates rigorous data protection measures.¹⁸ Nonetheless, these concerns are exacerbated by the integration of AI into surveillance systems, as AI technologies are designed to collect, analyse, and comprehend vast quantities of data.

Issues Pertaining to Data Breaches and Identity Theft Among the most significant threats to an individual's digital identity in contemporary society are data breaches and identity theft. Unauthorized individuals accessing data is referred to as a data breach. Criminal activities such as identity theft may be executed through the utilization of this data, which is likely to encompass personally identifiable information. The

¹⁷ The Indian government has established a National Cyber Security Policy to promote cybersecurity awareness and best practices. See National Cyber Security Policy (2013), 3-5.

¹⁸ Justice K.S. Puttaswamy v. Union of India, (2017) 10 SCC 1, para 415.

appropriation of personal information, frequently referred to as "identity theft," constitutes a prevalent method through which individuals engaged in criminal activities obtain unlawful financial benefits or perpetrate additional offenses. The newly enacted Indian legislation, referred to as the "Digital Personal Data Protection Act, 2023" ('DPDPA'), aims to safeguard personal data and mitigate associated risks by instituting rigorous requirements for entities that handle sensitive information.

The Function of Artificial Intelligence in Safeguarding Identity¹⁹ and Addressing Breaches

In the domain of safeguarding one's digital identity, artificial intelligence possesses the capacity to yield both beneficial and detrimental outcomes. Conversely, the employment of advanced algorithms capable of identifying anomalies in digital interactions enables AI-driven systems to enhance identity verification processes, thus facilitating the detection of potential identity theft attempts. An illustrative instance is the application of AI-driven biometric authentication systems,²⁰ which leverage unique biological traits that are more challenging to duplicate than traditional passwords, to verify identities swiftly and effectively.

Challenges in Safeguarding Identity with AI and Surveillance

As the use of artificial intelligence (AI) in surveillance becomes more commonplace, lawmakers and the general public are debating how to strike a fair balance between personal data protection and national security. In highly populated nations like India, surveillance systems are necessary for improving security, but they also violate people's right to privacy. The use of biometric identification, behavioural analysis, and AI-driven face recognition is on the rise as a means to combat crime and increase public safety. The problem is that these programs collect too much personal data, which could lead to a breach of certain people's privacy rights guaranteed by "Article 21 of the Indian Constitution." The Indian Supreme Court recognized privacy as a basic right in "Justice K.S. Puttaswamy v. Union of India," laying the groundwork for protecting personal liberty while ensuring the safety of all citizens. But as AI surveillance grows in scope, the threat to civil liberties is on the rise. Legislators must, therefore, achieve the pinnacle of security while also respecting citizens' fundamental right to privacy.

Challenges in Moral and Legal Considerations of AI-Powered Monitoring

Using AI-driven surveillance systems is also fraught with several major ethical and

¹⁹ Al-Rimy, B. A. S., et al. (2020). Artificial Intelligence for Identity Theft Detection: A Review. IEEE Transactions on Information Forensics and Security, 15, 1-12. doi: 10.1109/TIFS.2020.2964313

²⁰ Kaur & Singh (supra note 1), 5-6.

legal questions. Artificial intelligence (AI) can help with public area monitoring and crime pattern prediction because of its speed and ability to process massive amounts of data. Unfortunately, there is a risk of misuse of artificial intelligence (AI) in surveillance, which can lead to violations of rights without adequate legal safeguards, misuse of data, and the inability to assign blame. An example of an unintended ethical dilemma could be the rise of racial profiling and discrimination in AI-powered predictive policing systems that aim to identify areas most likely to have criminal activity. Only two Indian statutes, the "Information Technology Act, 2000" and the more recent "Digital Personal Data Protection Act, 2023," deal with the topic of AI-controlled spying. Having said that, the number of guidelines provided by these provisions is quite limited. As a result, AI surveillance systems should adhere to ethical standards like openness, responsibility, and equity to prevent abuse and stay within the law and moral guidelines.²¹

International Comparison

The predominant frameworks for the protection of AI identity and cybersecurity differ globally; however, they uniformly emphasize the safeguarding of personal data and the establishment of rigorous constraints on data collection and processing. An illustrative instance of a global privacy statute is the European Union's General Data Protection Regulation (GDPR), which delineates criteria for both data controllers and processors. The aggregation of data for artificial intelligence surveillance systems necessitates compliance with specific and rigorous data processing standards, alongside the imperative of obtaining explicit consent as mandated by the General Data Protection Regulation (GDPR). In the United States, it is equally evident that data protection laws exhibit a degree of stringency at the federal level. Data security and identity protection remain imperative in sectors such as healthcare and consumer services, owing to the stringent regulations that govern them, including CCPA²² and HIPAA.²³

Examining the legal frameworks of the United States, European Union (GDPR), and China

By examining the regulatory frameworks of the US, EU, and China, I illustrate how each region enhances its measures to safeguard individual privacy while monitoring the implications of AI-driven surveillance. The 2018 controversy surrounding Facebook and Cambridge Analytica revealed the extent to which AI-driven algorithms in the United States manipulated user data without obtaining consent. This instance was no

²¹ Mittelstadt, B. (2019). *AI Ethics: A Framework for Developing Ethical AI Systems*. Springer. doi: 10.1007/978-3-030-24067-2

²² California Attorney General, California Consumer Privacy Act (CCPA) Regulations (2020).

²³ Health Insurance Portability and Accountability Act, Pub. L. No. 104-191, 110 Stat. 1936 (1996).

exception; it illustrated the necessity for more stringent federal oversight to protect individuals' private information from negligent corporate behaviours.²⁴ As a result, a more rigorous examination of this data handling practice within the technology sector is warranted. However, EU legislation, particularly the General Data Protection Regulation (GDPR), serves as a prime illustration of preventative regulation. In light of its failure to ensure transparency in data processing, Google faced a substantial penalty in 2019²⁵ under the General Data Protection Regulation (GDPR). This indicates that the European Union is committed to safeguarding individuals' rights to privacy.

Assessment: India's Position on the Global Stage

The legislative and regulatory challenges are significantly influencing India's approach to cybersecurity and AI-based identity protection in the context of these global frameworks. The 'Digital Personal Data Protection Act, 2023' (DPDPA) of India bears resemblance to the General Data Protection Regulation (GDPR) in its emphasis on consent and data minimization; however, it lacks the comprehensive framework and enforcement mechanisms characteristic of the latter. One additional factor contributing to India's lag is its reliance on the antiquated and detrimental "Information Technology Act, 2000" and its subsequent amendments, which fail to address the challenges posed by artificial intelligence. The objective of this framework ought to be to foster technical advancement while concurrently safeguarding the identities of individuals.

Role of AI in Strengthening Cybersecurity Laws in India

The advent of artificial intelligence (AI) possesses the potential to fundamentally transform cybersecurity legislation in India, particularly through its capabilities in detecting and mitigating cyber threats. In order to identify patterns and pre-emptively thwart cyberattacks,²⁶ tools powered by artificial intelligence employ machine learning algorithms to analyse vast quantities of data. Artificial intelligence (AI) possesses the capability to discern potential threats within a system through techniques such as anomaly detection. The capacity for prediction holds significant importance in India, a nation experiencing swift digitization, where the safeguarding of sensitive data and national security is imperative. Instances of artificial intelligence in practice encompass its capacity to identify phishing attempts through the examination of email composition and sender conduct, as well as its proficiency in notifying users of potential threats with greater swiftness than conventional cybersecurity frameworks. This delineates the

²⁴ Gupta, A., & Kumar, V. (2019). Cybersecurity Risks in Cloud Computing. *International Journal of Cloud Computing*, 8(1), 1-15. doi: 10.1504/IJCC.2019.096934

²⁵ European Commission, "Google Android case: Commission fines Google €4.34 billion for abusing dominance" (Press Release, July 18, 2018), noting that the fine was upheld in 2019.

²⁶ The Indian government has established a National Cyber Security Policy to promote cybersecurity awareness and best practices. See National Cyber Security Policy (2013), 3-5.

measures undertaken by legislators to enhance cybersecurity in India and safeguard individuals' identities.

Reflections on Ethical Implications in Intelligent Security versus Intelligent Monitoring

The integration of artificial intelligence within smart surveillance systems for the purpose of safeguarding identity in the domain of cybersecurity presents a myriad of intricate ethical dilemmas.²⁷ Artificial intelligence (AI) driven surveillance systems effectively enhance our safety by monitoring potential threats; however, they simultaneously provoke significant concerns regarding privacy infringements and the erosion of individual autonomy. The right to privacy is fundamentally entrenched, thus any encroachment must be justified and conducted for the collective benefit. The ethical obligation for AI surveillance to adhere to the same principles of freedom applicable to individuals is dictated by this precedent. As a result, artificial intelligence instruments accumulate vast quantities of data that may be exploited if not properly regulated. Consequently, safeguarding human rights in the advancement of these AI applications is essential for the evolution of an Indian cybersecurity framework. The culmination of this endeavour will be a security system that prioritizes the preservation of privacy.²⁸

An Examination of the Present Landscape of AI-Driven Cybersecurity Solutions Across Public and Private Sectors

It is increasingly acknowledged that the integration of artificial intelligence plays a crucial role in mitigating intricate cyber threats, prompting a growing number of entities within both the Indian government and private sectors to adopt AI-driven cybersecurity solutions. Concurrently, the Indian government has initiated a series of programs, among which is the Centre for Development of Advanced Computing's (C-DAC)²⁹ development of AI-driven solutions aimed at enhancing the nation's cybersecurity framework. Another entity at the forefront of this initiative is the Indian Computer Emergency Response Team (CERT-IN). In order to safeguard essential infrastructure, it employs artificial intelligence to identify potential cyber threats and vulnerabilities, while also offering tools for incident response. Organizations such as Wipro and Tata Consultancy Services (TCS) are engaged in the development of AI security frameworks aimed at assisting enterprises in the detection and real-time response to threats. These enterprises employ sophisticated software that meticulously analyses networks for anomalous activities, providing pre-emptive insights into

²⁷ Kroll, J. (2018). The Moral and Legal Implications of AI-Powered Monitoring. *Harvard Journal of Law and Technology*, 31(2), 355-384.

²⁸ Floridi, L. (2019). *The Ethics of Artificial Intelligence*. Routledge. doi: 10.4324/9780429425641

²⁹ C-DAC, "Artificial Intelligence and Machine Learning: A C-DAC Initiative" (White Paper, 2020).

prospective threats. To ensure the responsible governance of these applications, the advent of AI has rendered the establishment of AI-specific cybersecurity laws imperative.

Emerging AI-Powered Strategies for Identity Protection in India

One notable development in India's cybersecurity landscape is the emergence of AI-driven identity protection solutions. The significance of biometric authentication and multi-factor authentication systems is increasingly recognized by them. Biometric technologies, such as fingerprint and facial recognition,³⁰ significantly enhance the security of identity verification by complicating unauthorized access to sensitive information. Guaranteeing the ethical and secure utilization of various forms of personal data collection, encompassing biometric and behavioural data, necessitates obtaining consent in accordance with the "Digital Personal Data Protection Act, 2023." The implementation of artificial intelligence has significantly elevated the standards of cybersecurity in India.³¹ It is imperative that we establish regulations that will enable these tools to function in a manner that is both ethical and secure. In order to effectively leverage the potential of artificial intelligence for the safeguarding of identity, while concurrently upholding the privacy and data security rights of its citizens, India must continually refine its strategies in response to this escalating threat.

Suggestions

To tackle the challenges of identity protection in AI-driven cybersecurity and surveillance in India, specific, practical changes within current legal frameworks are required:

1. It is critical to set clear standards for data minimization in AI-based surveillance systems³² in order to avoid collecting too much data. This will reduce the chances of identity breaches and unauthorized access by processing only the data that is absolutely necessary.
2. Include specific fines for the abuse of artificial intelligence in surveillance in the "Digital Personal Data Protection Act, 2023" and strengthen its enforcement procedures. This would promote responsible data handling

³⁰ Ratha, N. K., et al. (2017). Biometric Authentication: A Survey. Proceedings of the IEEE International Conference on Biometrics: Theory, Applications, and Systems, 1-8. doi: 10.1109/BTAS.2017.8272735

³¹ Bureau of Indian Standards, "IS 16146:2015: Information Technology - Security Techniques - Information Security Management Systems - Requirements" (2015).

³² Chen, Y. (2020). AI-Driven Surveillance: A Review of the Literature. IEEE Transactions on Information Forensics and Security, 15, 1-12.

practices and make sure that companies are punished when breaches occur.³³

3. Organizations using AI surveillance tools should be required to be transparent, which means they should publish reports on their data collection and processing activities at regular intervals. Because people will be able to understand how their data is used and protected, this could lead to a rise in public trust.
4. Create a governing organization to oversee the use of AI in surveillance and cybersecurity, allowing organizations like CERT-IN and MeitY to work together. Policies can be more easily enforced and regulatory ambiguities can be reduced with a unified approach.
5. Incorporate international best practices, such as data portability rights and consent mechanisms aligned with GDPR, into Indian laws to strengthen them. This change will ensure that India's cybersecurity framework can keep up with the rest of the world while still protecting people's right to privacy.

Conclusion

With the expansion of India's digital ecosystem, a significant advancement in safeguarding users' digital identities has been the integration of artificial intelligence (AI) within the domains of cybersecurity and surveillance. The enhancement of security can be achieved through the implementation of real-time monitoring, sophisticated threat detection, and robust identity verification, all facilitated by surveillance systems that leverage artificial intelligence (AI). The rapid proliferation of personal data gathered through surveillance technologies has engendered significant apprehensions regarding privacy, identity theft, and a myriad of legal, ethical, and regulatory issues. The findings of this study indicate that legislative measures such as the "Information Technology Act, 2000" and the "Digital Personal Data Protection Act, 2023" (DPDPA) have significantly advanced the legal framework of India. However, these models require further refinement to adequately address the complexities of cybersecurity and surveillance driven by artificial intelligence. The case of Justice K.S. Puttaswamy v. Union of India, along with analogous cases, illustrates the judiciary's recognition of privacy as an inherent right. However, safeguarding individual privacy in the context of employing AI for surveillance remains a formidable challenge. It is imperative that Indian legislation undergoes reform to adequately address the intricacies of identity protection, the implications of utilizing biometric data, and the principle of dynamic consent in the context of artificial intelligence (AI).

³³ Indian Computer Emergency Response Team (CERT-In), "The Information Technology (Reasonable Security Practices and Procedures and Sensitive Personal Data or Information) Rules, 2011" (2011).

In the domain of privacy and data security, the European Union's General Data Protection Regulation (GDPR) and various national legislations, such as those in the United States, establish a formidable standard. Although numerous parallels exist between the principles of GDPR and India's DPDPA, the latter is deficient in robust enforcement mechanisms and exhibits ambiguity regarding the implications of artificial intelligence (AI) in relation to the former. The integration of transparency, accountability, and the ethical application of artificial intelligence is imperative within the framework of legal reforms. It is imperative that security measures be established for smart surveillance systems employing artificial intelligence (AI) to safeguard against the potential illegal use and compromise of data. Moreover, the integration of permission mechanisms within AI systems holds the promise of enforcing personal control over monitoring tools that are accessible to the public. Enhanced data protection protocols, coupled with the progression of artificial intelligence technologies aimed at safeguarding identity—such as biometric and behavioural data authentication—are imperative to thwart the misuse of sensitive information. The emergence of AI-driven cybersecurity threats necessitates a proactive response from India's regulatory authorities, including the Ministry of Electronics and Information Technology, CERT, and IN. Addressing emerging cybersecurity threats is undoubtedly crucial; however, it is equally important to ensure that government agencies remain well-coordinated, to formulate improved regulations for artificial intelligence, and to foster collaboration with the business sector. Future legislative modifications in India ought to address the intricate aspects of artificial intelligence while providing appropriate protections for individual rights, thereby ensuring that the nation's cybersecurity regulations evolve in tandem with the complexities of the digital age. Furthermore, we shall continue our holiday shopping endeavours concurrently with our engagement in the formidable task of dragon-slaying.

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Challenges and Positive Outcomes of Digitalization in Driving

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Amrita

Research Scholar, Dept. of Psychology, M.D. University, Rohtak

Anjali Malik

Professor, Dept. of Psychology, M.D. University, Rohtak

Abstract

The impact of digitalization on our lives is profound. In the era of digitalization, social media plays a central role in not just communication, influencing opinions but even driving trends. Digitalization has significantly altered our driving habits, introducing both conveniences and risks. Several studies have investigated digitalization's positive and negative impacts on driving behavior. Social media and connectivity tempt individuals to stay engaged online while driving, and in-car entertainment systems sometimes lead to distractions. Widespread use of digital screens like LED in cars and smartphones has led to increased distractions, with drivers often texting, calling, or using apps on the road. Literature records significant detrimental effects on driver behavior and safety, due to the higher workload involved in such multi-tasking. Navigation systems, GPS, and real-time traffic apps, while aiding in efficient travel, can contribute to risky behaviors as drivers may prioritize device interaction over road awareness. The constant connectivity and notifications can create frustration and impatience among drivers, escalating tensions on the road. It also contributes to road rage by fostering distractions through various media engagement and in-car entertainment systems. The gamification of driving apps and the pressure to showcase skills on social platforms can encourage risky behaviors, further fuelling instances of road rage. The current study will review studies focused on positive outcomes and challenges of digitalization in driving.

Keywords: Digitalization, Driving, Road rage

Corresponding author:

Amrita, Research Scholar, Dept. of Psychology, M.D. University, Rohtak

Introduction

The transportation sector is undergoing a profound transformation driven by the rapid digitalization of vehicles and infrastructure. Emerging technologies, such as Advanced Driver Assistance Systems (ADAS), connected and automated vehicles (CAVs), Intelligent Transportation Systems (ITS), and electrified vehicles, are revolutionizing mobility, improving safety, operational efficiency, and environmental sustainability. As vehicles evolve into connected digital ecosystems, they not only promise enhanced driving experiences but also address challenges such as congestion, energy inefficiency, and road safety.

On the positive side, technologies like ITS and ADAS play critical role in improving safety and traffic management. ITS enables real-time monitoring of traffic conditions and communication between vehicles and infrastructure, fostering faster responses to hazardous conditions and reducing accident rates. ADAS features, such as lane departure warnings, collision avoidance, and adaptive cruise control, enhance driver behavior by encouraging safer practices, such as maintaining appropriate headway distances and reducing mean speeds (Voinea, Postelnicu, Duguleana, Mogan and Socianu, 2020). Electrified and connected vehicles further showcase significant environmental benefits, such as reduced greenhouse gas emissions and increased energy efficiency, contributing to a cleaner transportation future (Mihet-Popa & Saponara, 2018; Alanazi & Alenezi, 2024). Simultaneously, the rise of smartphone-based driver assistance applications plays an important role in reducing distractions by encouraging responsible driving habits through real-time alerts and feedback.

However, alongside these promising advancements, digitalization in driving also introduces significant challenges. The growing prevalence of in-vehicle technologies and mobile connectivity features, such as Bluetooth, Wi-Fi, and entertainment systems, has led to increased instances of distracted driving. These technologies, while improving convenience, impair cognitive attention and reaction times, thus increasing the likelihood of road accidents (Schneider, D'Ambrosio, Lee, and Coughlin, 2024). Overreliance on driver-assistance systems, particularly semi-autonomous features, can foster complacency, creating a false sense of security and reducing drivers' situational awareness.

The duality of digitalization's impact- its ability to simultaneously enhance safety, efficiency, and sustainability while introducing new risks- highlights the importance of critically evaluating its outcomes. A comprehensive examination of both the positive and negative implications is essential to know better about technological advancement issues and its benefits. By balancing the benefits of innovation with strategies to mitigate challenges, the transportation sector can harness the full potential of digitalization to create safer, more efficient, and equitable systems.

Rationale of the Study

The increasing integration of digital technologies in the automotive sector has significant implications for driving behavior, road safety, and transportation systems.

The motivation for doing the present study is grounded in the rapid pace of technological advancements and their profound influence on transportation. As vehicles become equipped with systems such as Intelligent Transportation Systems (ITS) and advanced driver assistance systems (ADAS), the potential for enhanced safety and efficiency becomes apparent. Studies have shown that these technologies can reduce accident rates, optimize traffic flow, and improve overall user experience. For instance, the real-time data sharing enabled by ITS allows for more responsive traffic management, ultimately leading to fewer collisions and more efficient travel. Reliance on technology can foster complacency among drivers, reducing their engagement and awareness, thereby heightening the risk of collisions. The potential for privacy infringements associated with connected vehicles also poses ethical considerations that warrant discussion. Given the complexity of these issues, this review aims to address- What are the positive and negative outcomes of digitalization in driving and how do these outcomes affect drivers and driving conditions.

This paper provides a thematic review of studies that explore the effects of digitalization in driving, and categorizing findings into positive and negative outcomes. Positive impacts, such as improved safety, reduced emissions, and enhanced traffic flow, are contrasted with challenges like distracted driving, technological complacency, and socio-economic barriers. By synthesizing evidence across safety, environmental, operational, and socio-economic dimensions, this review aims to offer a balanced and holistic understanding of the transformative role of digital technologies in driving.

Objective: To conduct a comprehensive review of the influence of digitalization on driving.

Method: For the present study, we reviewed various studies, about the technologies introduced in vehicles and their outcomes, and other human problems we encounter. We have used multiple sources to do so like Google Scholar, Pub Med, Shodh-Ganga, and other online platforms.

Review

This review explores the various aspects of digitalization in the transportation sector, with a focus on the adoption of ADAS, technology acceptance models, and their implications for driving behavior and safety. It examines how digital tools, such as smartphone-based ADAS, are influencing driving performance and road safety, while also investigating the factors affecting the adoption of these technologies by drivers. Additionally, it looks at the intersection of technology with sustainability goals,

particularly in the context of electric vehicles, and the economic implications of digital infrastructure in this sector. Key findings include:

Digitalization and Driver Assistance Systems (ADAS): Integrating smartphone-based ADAS and sensor technologies has significantly improved driving performance, enhanced road safety, and reduced fatalities, especially in trucks and passenger vehicles. Studies, such as Voinea, Postelnicu, Duguleana, Mogan and Socianu, (2020), demonstrate how smartphone-based ADAS increase headway time, reduce speeds, and foster safer driving behaviors. These systems also exhibit high user acceptance due to intuitive interfaces and augmented reality features, although challenges like over-reliance and usability issues in complex scenarios remain. Innamorati (2024) highlights the role of ADAS in reducing truck road fatalities, aligning with the EU's Vision Zero strategy. Despite the mandated use of these systems, some truck drivers disable them, indicating resistance and gaps in adoption. This study, using the Technology Acceptance Model (TAM), revealed both safety benefits and barriers, such as limited driver engagement with advanced features. Mester & Pisarov (2021) explored advancements in self-driving cars and the contributions of ADAS to passenger and freight safety. While progress in safety and technology integration was noted, unresolved issues—such as ethical dilemmas and technological bottlenecks—persist, hindering seamless implementation. A study by Tatar, Bayar, Cicek, Nair (2024) discusses the increasing use of Machine Learning (ML) in Advanced Driver Assistance Systems (A/DAS), emphasizing the importance of efficient algorithm execution for safety. They highlight the role of hardware accelerators (e.g., FPGAs, GPUs) in processing large datasets and optimizing ADAS applications. The study provides insights into various ML models and benchmarks the hardware platforms used in ADAS, identifying challenges in system implementation and future research areas. Bengler, Dietmaver, Farber, Maurer, Stiller, and Winner (2014) review the development of driver assistance systems over the past three decades, focusing on the shift from basic safety features to complex systems using advanced sensors like radar and lidar. They discuss the evolution of automated and cooperative driving technologies aimed at improving safety and reducing accidents, highlighting the challenges of achieving fully autonomous driving and the steps needed to bridge the gap. Ameta and Mathur (2023) explore the technological advancements in Advanced Driving Assistance Systems (ADAS), reviewing key systems such as collision avoidance, lane departure warning, and adaptive cruise control. They discuss the benefits of ADAS, such as reduced accidents and improved traffic flow, while also addressing issues like reliability and cybersecurity. They also look at the integration of ADAS with autonomous driving systems and the ethical considerations surrounding their implementation.

Technology Impact, Distracted Driving, and Risk Behavior: While driver-assist

features can reduce risky driving behaviors, convenience technologies like Wi-Fi and Bluetooth often exacerbate distracted driving, posing a significant challenge in balancing safety benefits with driver attention. Schneider, D'Ambrosio, Lee, and Coughlin, (2024) highlight how convenience-oriented technologies contribute to increased distracted driving behavior (DDB), particularly among younger drivers and those with higher driving exposure. This underscores the dual impact of digital advancements—enhancing safety through driver-assist systems while simultaneously introducing risks through non-safety technologies. Driver acceptance of digital technologies plays a crucial role in their effectiveness. Positive attitudes, user-friendly designs, and organizational readiness are critical predictors of higher acceptance rates, ensuring consistent use and improved safety outcomes. Voinea et al. (2020) found that drivers' attitudes significantly influence their intention to use smartphone-based ADAS, while Basavarajappa (2016) emphasized the importance of organizational readiness, stakeholder support, and financial resources in the adoption of digital technologies. Furthermore, they explored digitalization in off-highway vehicle industries, identifying financial and technical constraints as major barriers to full implementation. These limitations often lead to partial adoption and missed opportunities to address distracted driving risks effectively. García-Herrero, Febres, Boulagouas, Gutiérrez and Saldaña (2021) explore the influence of technology-based distracted driving on drivers' infractions and traffic accident severity. Their findings indicate that distracted driving significantly increases the likelihood of committing infractions, such as speeding and aberrant behaviors. Young drivers and motorcyclists, in particular, are more prone to speeding and infractions when distracted by technology. Additionally, distractions tend to lead to more severe accidents, especially on streets and highways. The study highlights the critical role of technology-related distractions in traffic safety and the severity of resulting accidents. Sween, Ceschi, Tommasi, Sartori, and Weller (2017) investigate the connection between mobile phone use while driving (MPUWD), domain-specific risk-taking, and personality traits. Their study finds that individuals who engage in frequent MPUWD tend to score higher in risk-taking behaviors in areas like health/safety, gambling, and ethics. Personality traits such as low honesty-humility, low conscientiousness, and high openness to experience were linked to more frequent MPUWD. These results suggest that personality factors play an important role in predicting distracted driving behaviors and could help in designing better intervention strategies. Dunn, Dingus, Soccolich, and Horrey (2021) examine how driving automation systems, like SAE Level 2, impact distracted driving behaviors. Their research shows that experienced drivers using automation systems are more likely to engage in distracted driving behaviors, such as secondary task engagement and eye-glance diversions. In contrast, drivers with less experience using automation systems were more likely to experience drowsiness. The study suggests that

overreliance on automation technologies may undermine some of their safety benefits, emphasizing the need for further research into how automation impacts driver behavior and its unintended consequences.

Economic and Environmental Impacts: Digitalization in transportation, particularly through vehicle electrification and smart grid integration, significantly contributes to sustainability goals by reducing greenhouse gas emissions, enhancing resource efficiency, and improving overall operational performance. These advancements also yield considerable economic benefits, including cost savings in infrastructure and vehicle operations, leading to more efficient and sustainable road systems. Mester and Pizarov (2021) highlighted the role of digitalization, including autonomous vehicle technologies, in improving safety and efficiency across both freight and passenger transport. Similarly, Alanazi and Alenezi (2024) emphasized how digital transformation positively impacts environmental sustainability by lowering emissions and improving air quality, despite ongoing concerns regarding data privacy and cybersecurity vulnerabilities. Mihet-Popa and Saponara (2018) provided a detailed review of green vehicle (GV) electrification, showcasing its role in reducing emissions and optimizing resource use. However, they also noted cybersecurity risks, which could undermine user trust and adoption. Stockar, Tulpule, Marano, and Rizzoni (2010) focus on the development of tools for Plug-in Hybrid Electric Vehicle (PHEV) design, energy analysis, and management. They assess how design factors, driving cycles, charging frequency, and energy management affect performance, fuel economy, range, and battery life. Using a Chevrolet Equinox hybridized at The Ohio State University, the authors simulated real-world driving scenarios based on common cycles and average driving statistics. They evaluated various operation modes, battery sizes, and charging scenarios, comparing PHEVs with conventional internal combustion engine (ICE) vehicles and hybrid models. The findings highlight significant reductions in petroleum use, fuel costs, and CO₂ emissions for PHEVs, but emphasize that the optimal configuration depends on multiple factors, including battery size, operation mode, and fuel and electricity costs.

Barriers and Challenges to Digitalization: Despite its significant potential, the digitalization of transportation faces numerous challenges, including limited connectivity, resistance to change, socio-economic barriers, and regulatory hurdles. These challenges are particularly evident in rural areas and industries such as the automobile aftermarket and off-highway vehicle sectors. Ferrari, Bacco, Gaber, Jedlitschka, Hess, Kaipainen, Koltsida, Toli and Brunori (2024) and Basavarajappa (2016) highlighted key barriers in rural and off-highway contexts, including insufficient connectivity, distrust in technology, and socio-economic disparities. These limitations often hinder the widespread adoption of digital technologies, emphasizing the need for targeted solutions to bridge these gaps. Cruz and Sarmento (2018)

examined the digitalization of road infrastructure, revealing potential savings of up to 40% in capital and operational expenses. However, institutional and regulatory barriers frequently delayed effective implementation. Similarly, Ferrari et al. (2024) noted that while economic and regulatory incentives have driven adoption in some regions, marginalized communities and smaller stakeholders often face exclusion.

Future of Digitalized Transportation Systems: The successful integration of digital technologies into transportation relies heavily on supportive policies, regulatory frameworks, and collaborative stakeholder efforts. Ferrari, Bacco, Gaber, Jedlitschka, Hess, Kaipainen, Koltsida, Toli and Brunori (2024) emphasize the importance of regulations in fostering digital adoption in rural areas, addressing challenges such as limited connectivity and socio-economic disparities. Similarly, Alanazi and Alenezi (2024) highlight the critical role of policymakers in driving sustainable transportation initiatives by mitigating risks related to data security, privacy, and ethical concerns. Digital transformation is set to redefine transportation landscapes, enabling seamless integration across land, water, and air travel. Mester and Pisarov (2021) predict a future dominated by innovations such as robot taxis and shared mobility solutions, which promise enhanced efficiency and reduced environmental impact. Alanazi and Alenezi (2024) propose best practices for implementing digital transformation, emphasizing the need for cross-sectoral collaboration, robust regulatory oversight, and adherence to ethical standards.

As transportation systems continue to evolve, aligning technological advancements with inclusive policies and sustainable practices will be essential for maximizing the benefits of digitalization while effectively addressing emerging challenges.

Positive and Negative Outcomes of Digitalization in Driving

Positive Outcomes

	authors	results
Enhanced Road Safety through ADAS	Voinea et al. (2020), Innamorati (2024)	Smartphone-based ADAS improves safety by increasing headway and reducing speed; ADAS in trucks aligns with Vision Zero by reducing road fatalities.
Sustainable and Efficient Transportation	Alanazi & Alenezi (2024), Mihet-Popa & Saponara (2018)	Digital transformation reduces emissions and integrates energy demands efficiently using innovations like 48V HEVs and smart grids.
Improved Driving Behavior and User Experience	Schneider et al. (2024), Mester & Pisarov (2021)	AVTs reduce distracted driving and enhance passenger experience through advanced data processing.

Cost Reduction and Economic Gains	Cruz & Sarmento (2018)	Digitalization in road infrastructure can save up to 30% in Cap Ex and Op Ex, enhancing societal value for money.
Empowerment of Rural Areas	Ferrari et al. (2024)	Digitalization reduces costs and boosts productivity in rural areas, enhancing socio-economic impacts.
Increased Technology Acceptance	Basavarajappa (2024)	Financial readiness and governmental support foster adoption of digital strategies in the automobile aftermarket.

Digitalization in driving has led to significant improvements in road safety, sustainability, and driving behavior. Advanced Driver Assistance Systems (ADAS) and autonomous vehicle technologies have been shown to enhance safety by reducing accidents and encouraging safer driving practices, such as increased time headway and reduced speeds. These technologies also support sustainability efforts by reducing greenhouse gas emissions and improving energy efficiency, with electric and connected vehicles playing a key role. In addition, the adoption of digital tools improves the driving experience, reducing distractions and optimizing vehicle functionality. Digitalization has also brought economic benefits, such as cost reductions in infrastructure and operational expenditures, with potential savings of up to 30%. Moreover, it holds promise for empowering rural areas by enhancing productivity and socio-economic outcomes. Increased technology acceptance among stakeholders further accelerates the adoption of digital solutions, creating a more interconnected and efficient transportation ecosystem.

Negative Outcomes

	Authors	results
Risk of Distracted Driving	Schneider et al. (2024)	Convenience features like Wi-Fi and Bluetooth increase distracted driving behaviors, especially among younger drivers.
Cybersecurity and Privacy Concerns	Mihet-Popa & Saponara (2018), Alanazi & Alenezi (2024)	Cyber threats to on-board systems and data privacy issues hinder full potential realization of connected vehicles.
Digital Dependency and Marginalization	Ferrari et al. (2024), Basavarajappa (2024)	Over-dependence on technology and gaps in organizational readiness risk unequal adoption and marginalization in rural areas.

Barriers to ADAS Adoption	Innamorati (2024)	Drivers disabling ADAS limits its effectiveness, showing a misalignment between technological potential and user behavior.
Excess Capacity in Road Infrastructure	Cruz & Sarmiento (2018)	Underutilization of infrastructure due to autonomous vehicles challenges current investment models.
Ethical and Regulatory Challenges	Alanazi&Alenezi (2024)	Balancing technological advances with societal well-being is complex due to slow-adapting regulatory frameworks.

While digitalization offers many benefits, it also presents several challenges. The increased use of connected technologies has raised concerns over cybersecurity and data privacy, as digital systems become more vulnerable to cyberattacks, putting driver safety and personal information at risk. Adoption of new technologies can lead to distracted driving, particularly when features like Wi-Fi and Bluetooth are not well-regulated. Digital dependency may marginalize rural areas, where limited technological access can exacerbate socio-economic inequalities. Additionally, barriers to the adoption of ADAS, such as resistance from drivers and cost implications, may hinder the widespread implementation of safety technologies. The shift toward autonomous vehicles could also result in underutilized road infrastructure, creating inefficiencies and challenges for current investment models. Lastly, ethical and regulatory challenges, along with slow adaptations in policy, may impede the full integration of digital solutions, requiring careful consideration of societal impacts and technological balance.

Summary

This review provides a comprehensive analysis of the digital transformation within the driving and transportation sectors, examining both the positive and negative outcomes of these technological advancements. On the positive side, the integration of Advanced Driver Assistance Systems (ADAS) has proven to enhance road safety. The adoption of electric vehicles and their integration into smart grids has contributed to environmental sustainability. Additionally, digital tools are improving operational efficiency and transforming rural and freight transport systems, though socio-economic barriers continue to limit the equitable adoption of these technologies. However, the review also identifies several challenges associated with the digitalization of driving. Issues such as cybersecurity risks, increased instances of distracted driving, and socio-economic marginalization highlight the complexities of widespread adoption. Despite the potential of these technologies, these negative impacts necessitate strategic interventions, ensuring that all road users can benefit from digital innovations without

facing unintended consequences. The findings emphasize the need for a balanced approach to digital transformation.

Conclusion

The digitalization of the transportation sector offers transformative potential in enhancing road safety, operational efficiency, and environmental sustainability through technologies like Advanced Driver Assistance Systems (ADAS), connected vehicles, and sustainable transport systems. These innovations improve traffic management, reduce greenhouse gas emissions, and foster innovation, contributing to significant societal benefits. However, challenges such as distracted driving, cybersecurity vulnerabilities, and socio-economic disparities in technology access persist. User acceptance, equitable accessibility, and infrastructural limitations in underserved regions remain critical barriers, alongside growing concerns about data privacy and security. Addressing these issues requires robust regulatory frameworks, user-centric designs, and targeted educational initiatives to build trust and understanding among diverse user groups. Despite these advancements, several limitations exist in current research. Most studies are region-specific, focusing predominantly on developed regions like Europe and North America, limiting their applicability to diverse socio-economic and infrastructural contexts in developing nations. Additionally, there is a lack of comprehensive long-term behavioral insights regarding the sustained impacts of digital technologies on driver safety and behavior. Furthermore, cybersecurity and data privacy concerns, while addressed in part, require deeper investigation as transportation systems become increasingly connected and autonomous. Future research should emphasize a global perspective, examining the unique challenges of digitalization in both urban and rural settings across diverse socio-economic landscapes. Longitudinal studies are essential to assess the lasting behavioral, environmental, and economic impacts of technologies like ADAS, electric vehicles, and autonomous systems. Cybersecurity and ethical concerns surrounding data privacy and system vulnerabilities in connected technologies must also be prioritized. An interdisciplinary approach, integrating insights from technology, human behavior, urban planning, and environmental science, will facilitate the creation of effective and sustainable transportation systems. Additionally, emerging technologies such as AI-driven safety features, vehicle-to-everything (V2X) communication, and advanced data analytics require further exploration to understand their long-term impact on infrastructure, user behavior, and overall system performance.

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E-Kranti: Electronic Delivery of Services in Digital India Program

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Naveen

Research Scholar, Dept. of Political Science, M.D. University, Rohtak

Rajendra Sharma

Professor and Head, Dept. of Political Science, M.D. University, Rohtak

Abstract

With the aim to set up a transformative, communicative, transparent, responsive and an efficient system for rebuilding India into a digitally empowered country, Govt. of India launched 'Digital India' mission on 1st July 2015. This was a significant step ahead of the National E-Governance Plan (NeGP) launched in May, 2006 and E-Kranti (NeGP 2.0) launched in 2014. The novel initiative of launching 'Digital India' was taken to give a thrust to the identified growth areas for ensuring that India becomes digitally empowered society and a knowledge economy in the technological decades of 21st Century. This paper tries to critically evaluate the E-Kranti initiatives in the present context of Digital India Mission. The findings indicate that if the issues related to infrastructure, finances, technology, training, digital awareness and data protection among others are addressed at an early stage, then e-Kranti has excellent potential to uplift the society and also, the scores of India in indicators of the reports of Transparency International and good governance. The Secondary type of data and the exploratory and descriptive type of research methodology has been adopted in the paper.

Keywords: NeGP, E-Kranti, E-Governance, Good Governance and Digital India

Corresponding author:

Naveen, Research Scholar, Dept. of Political Science, M.D. University, Rohtak
E-mail: naveen19992@gmail.com

Introduction

With more than 830 million internet users in India, we are now called as the largest “digitally connected democracy” in the world. The National E-Governance Plan (NeGP) launched by the Govt. of India on 18th May, 2006 and the Mission Mode Projects revamped thereafter tried to push the Centre and the states to deliver to citizens in electronic manner. NeGP was designed to “make all government services accessible to the common man in his locality, through common service delivery outlets and ensure efficiency, transparency and reliability of such services at affordable costs to realise the basic needs of the common man”. NeGP encompasses the integrated service delivery platforms, 27 mission mode project and eight components which include core components and support components (Mishra & Fatmi, 2015). It can be analyzed as under:-

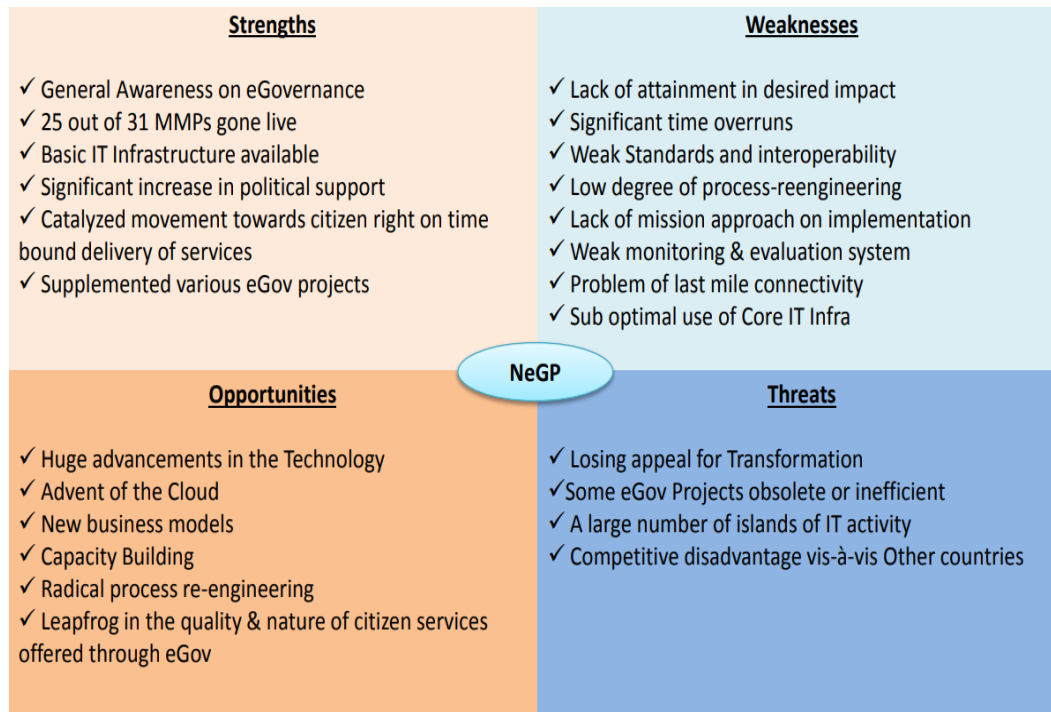


Figure 1: SWOT Analysis of NeGP

NeGP resulted into good progress across the states and now, we can see the impact of it. Online and smooth accessibility for facilities offered with regard to aadhar, railways, airways, online payment of bills of water/electricity etc., Online equity market among others reminds us that India has been growing digitally. Despite this, a thrust was needed to escalate this movement to bring transformation in such a way that the Indian society becomes digitally empowered. To give a push further, NeGP 2.0 or E-Kranti

was launched in 2014 with an improvement over NeGP 1.0. E-Kranti was launched by taking into consideration the following factors (R. K. Sharma & Priti, 2021):

- a) SWOT analysis of NeGP 1.0
- b) Need of transformational approach over existing incremental approach
- c) Competitive advantage for global leadership
- d) To set up new priorities
- e) New technologies based on cloud
- f) Need of integrated service delivery with interoperability among mobile based e-Gov applications
- g) End to end automation

Later on, the Govt. of India launched an umbrella program ‘Digital India’ which includes in it the revamped E-Kranti Program (NeGP 2.0) (Tejasvee, 2018) and other novel initiatives apart from reengineering the existing initiatives. The Digital India Program was launched with specifying its vision, scope and the growth pillars of futuristic digital society.

To showcase India’s digital prowess and inspire the next generation citizens apart from exploring the business opportunities for startups in technology sector, India celebrates ‘Digital India Week’ in the month of July. Further, The President of India confers ‘Digital India Awards’ every year to the ministries/departments which are outpacing the others in transforming India to a ‘digital empowered society and knowledge economy’ (GoI, 2023a).

The Program launched for digitally empowering India is achieving its heights day by day, but there is need of legislative backing to these initiatives. For that, Digital India Act, 2023 aims to replace the old I.T. Act and further emboldens its provisions by ensuring safety of data of the people (J. Sharma, 2016).

This paper would discuss about the concept, vision, scope and the pillars of the Digital India Mission which was launched with the aim to set up a transformative, communicative, transparent, responsive, accountable and an efficient system for rebuilding India into a digitally empowered country.

Objectives and Research Methodology

To make the things available digitally, to enhance transparency, to ensure accountability, to offer the public services with maximum efficiency, the Digital India Mission has been launched (Sihmar & Meena, 2019). E-Kranti is one of the significant pillars of the Digital India Mission. The purpose of launching this project is to

revolutionize the existing governance system. The objective of the paper is to study e-Kranti i.e. electronic delivery of services in Digital India Program and to find out the factors addressing which it can fulfil its potential to reform the society at large. The content drawn here has its source from the secondary type of data derived from the journals, newspapers and the websites especially of the Govt. of India apart from other relevant sources. The data has been of quantitative and qualitative type nature as derived from the sources referred above. Descriptive and exploratory research approach has been employed.

Theoretical Developments

The bureaucratic theory creates a conduit for information on the function and relationship between the people and the government (Kundu, 2023). The conception of delivering public services to the people started in 1970s and 1980s during the period of domination of neo-liberal philosophy across the national and international discussions (Garg, 2017). Advances in the theory such as New Public Administration (NPA) focusing on citizen participation, decentralization, transparency, empowering citizens, providing high-quality services emerged in 1960s. Public Choice Theory (A. K. Sharma, 2004) was seen as an alternative which focus on giving more and more options/choice to the citizens resulting into empowering of democracy through citizen participation. The 1990s saw the emergence of New Public Management (NPM), which placed a strong emphasis on incorporating ‘what’ and ‘why’ from government /public administration and ‘how’ from private administration. It resulted into an integrated approach i.e. market-based public administration. As a movement in the UK, the NPM gained momentum under Prime Minister Margaret Thatcher. As a result, the state functions as a producer and distributor of public services changed to one of facilitator and regulator. Being the part of NPM movement, many nations implemented economic reform programmes that opened up markets to private competition and allowed the private sector to operate where the government had previously held monopolies. The objective was to empower the citizens and to offer choice to the people with regard to type of services. An additional advancement was the emergence of the notion of "governance," which prioritized efficient service delivery as the appropriate approach to governance (Mathur, 2016). The necessity of the NPM perspective stems from bureaucratic ineffectiveness, inefficiency, and lack of responsiveness to the service delivery domain. NPM includes new ideals from the private sector in addition to promoting the simple application of new technologies in the public service delivery process. The dissemination of private sector ideals in the provision of public services highlights the need to embrace an entrepreneurial mindset within its purview (Kundu, 2023).

With these theories, the notion of ‘government first’ has changed to ‘citizen first’

(Kundu, 2023). Consequently, citizen charter was implemented across the nations. The nomenclature might be different but the spirit remains the same. To name a few, USA's Government Performance and Result Act, UK's Citizen Charter, Australia's Public Service Act and Japan's Public Service Reform Act were enacted in a short time frame. The United Nations General Assembly in its meeting held in 2002 designated 23rd June as the Public Service Day under Resolution 57/277 to highlight the contribution of public service in the development process (UNGA, 2002). Thereafter, developing countries also took a number of initiatives to ensure transparency and efficiency in the existing system. A number of Acts and regulations like RTI, social audit, E-governance, public service delivery acts were passed by the central and state governments.

DIGITAL INDIA MISSION

Vision

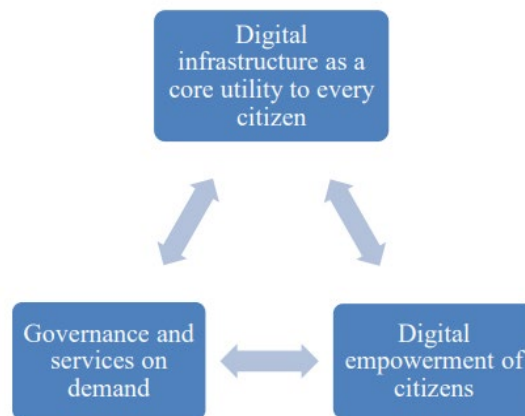


Figure 2: Vision of Digital India Mission

One of these visions namely services on demand has been a focus area of the researcher in this study. This vision encompasses the following important attributes among others:

- (a) Single window accessibility system with seamless integration of departments and their jurisdictions.
- (b) Ensuring availability of services in real time through various electronic platforms.
- (c) With the use of cloud system, citizen entitlements will be ensured to be readily and easily available.
- (d) Financial transactions towards government services to be cashless and electronic.

Scope

To fulfill the vision of the Digital India, the scope of the program has identified as under (Deity, 2016):-

- (i) Technology should be the central element to bring the enabling change.
- (ii) To realize “IT (Indian Talent) + IT (Information Technology) = IT (India Tomorrow)”
- (iii) Integration of existing ideas and the strengths into a single goal, which itself to be identified as part of larger goal for transforming the Indian society
- (iv) Restructuring, synchronization, integration would be focused upon to see the transformative impact of the Program.

Pillars

In light of the progress made by the Centre and the states after the launch of NeGP in 2006 and the areas which need to be more stressed, the Digital India has made its thrust on nine growth pillars as shown below (Deity, 2016).

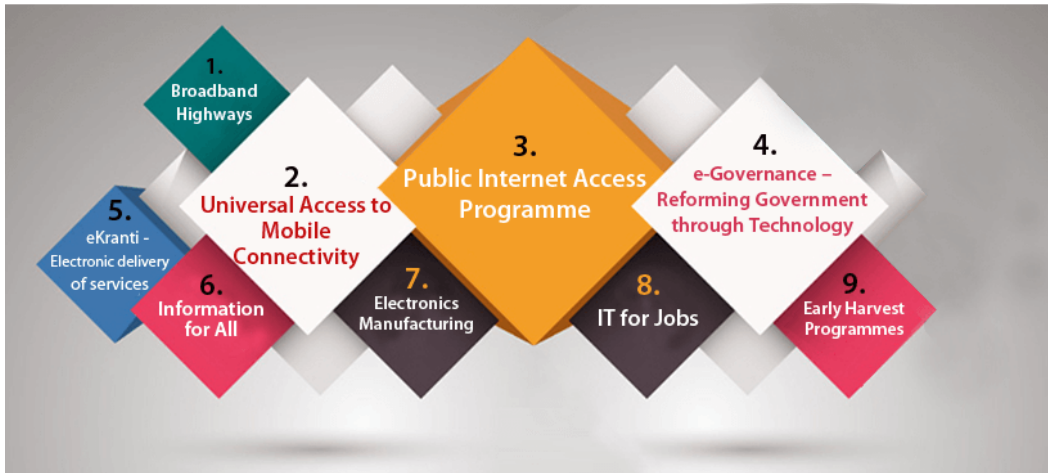


Figure 3: Nine Pillars of Digital India Mission

Every pillar has its own significance in terms of the proposed impact on the Indian society. E-Kranti and E-Governance pillar of the Digital India mission has direct impact on the citizenry in terms of receiving the services from the Govt. in a transparent, efficient and accountable manner. Pillar No. 4 and Pillar No. 5 of Digital India Program namely e-Governance and e-Kranti are having direct link with the e-Kranti: National e-Governance Plan (NeGP) 2.0. E-Kranti implementation is inevitable for transforming India digitally and to deliver easy governance, e-governance and good

governance in this largest democracy of the World.

E-KRANTI

The significant objective of e-Kranti is to strengthen the e-governance in India with the aim to achieve the spirit behind the slogan of Hon'ble Prime Minister of minimum government with maximum governance. The Central Govt. in March, 2015 approved the approach, key components etc. of E-Kranti which includes its vision, mission, key principles, approach and methodology, program management structure, implementation strategy and mission mode projects”.

The vision of this is “Transforming e-Governance for Transforming Governance” and the mission has its targets “To ensure a government-wide transformation by delivering government services electronically to the citizens through integrated and interoperable systems via multiple modes, while ensuring efficiency, transparency and reliability of such services at affordable costs.”

The important Principles of E-Kranti are:

- Integrated services not individual services
- Mobile first
- Cloud based technology
- Fast tracking approvals
- Language localization
- National GIS
- Mandatory standards and protocols
- Security and electronic data preservation
- Transformation and not translation etc. etc.

E-Kranti has laid down 44 Mission Mode Projects (MMPs) which includes (a) 13 Central MMPs (b) 17 State MMPs (c) 14 Integrated MMPs. These MMPs are under various stages of implementation.

Initiatives/thrust areas under E-Kranti includes:

Technology for Education

- All schools connected with broadband
- Free wifi in all schools (250,000)
- Digital Literacy Program
- MOOCs-develop pilot Massive Online Open Courses

Technology for Health

- Online medical consultation
- Online medical records
- Online medical supply
- Pan –India exchange patient information

Technology for Planning

- GIS based decision making
- National GIS Mission Mode Project

Technology for Cyber Security

- National Cyber Security Co-Ordination Centre

Technology for Farmers

- Real time Price information
- Online ordering of inputs
- Online cash, loan, relief payment with mobile banking

Technology for Financial Inclusion

- Mobile Banking
- Micro-ATM Program
- CSCs/Post Offices

Technology for Security

- Mobile Emergency Services

Technology for Justice

- E-Courts, E-Police, E-Jails, E-Prosecution

Figure 4: Major thrust areas

With these initiatives, the public at large is getting delivery of various services through various mobile based applications (Meena, 2021) viz.,

- Digilocker for accessing the marksheets, govt. issued identity cards etc.
- CO-WIN app for Covid-19 pandemic
- SWAYAM platform offers MOOC (Massive Open Online Courses) free of cost for enhancing the literacy standards in the society
- ABC Id which is a unique identity issued for the students having Academic Bank of Credits.
- DBT Platforms for transferring the financial benefits directly to the recipient and bypassing the roles of intermediaries.
- e-NAM provides a national level platforms for the farmers with regard to selling the farmers' produce across the *Mandis* and the states.
- UMANG app aims to converge the existing mobile applications for
- Diksha app is existing for upgrading the education standards amongst the students and the teaching community
- My Gov, Soil Health Card, BHIM App etc. etc. are the vital achievements of E-Kranti in Digital India mission.

Despite these prominent initiatives, the ranking of India in E-Government

Development Index (EGDI) published by the United Nations still hovers around 100 out of 193 countries (United Nations, n.d.).

Findings

Every Program or Mission has its achievements and failures and e-Kranti is not unique. While there are significant achievements of this Program at very large scale, there are limitations too.

Limitations of E-Kranti with regard to the delivery of services have been explored as under:

- a) **Finances & Infrastructure:** For technological development, there is strong need of financial support to boost the mission. During Covid-19 years, it has been observed that the financial and infrastructure development for fulfilling the objectives of E-Kranti are lacking to some extent.
- b) **Certainty:** In India, elections are just like seasons. When a new Govt. is established, it revamp the existing policies and programs, the result of which the Vision is not fulfilled which was devised while launching the mission. Here, we can see, NeGP 1.0 was launched, then e-Kranti was launched and finally it was merged into Digital India Program. The purpose of all those was almost similar i.e. to deliver the services offered by the government to the people in an affordable, accessible, convenient and easily availability manner. Thus, there is strong need of certainty in the policies so that people and the society may builds trust on these Programs.
- c) **Training:** It is often found that the Programs are launched at very fast pace to attract the people in a democratic country. But, before launching the same, it is highly important that the staff dealing with that platform or mobile based application is properly trained and well equipped.
- d) **Digital Literacy:** The standards of digital literacy in India can be though from the fact that only 67 per cent of the Urban population and 31 per cent of the Rural population is digitally literate. This form of inequality needs to be addressed at the earliest.
- e) **Cyber Security:** Recently, The Hindu expressed that a ransomware ‘Akira’ is stealing vital information from the mobile phones and extort money from the people. It was also in news that more than 50 per cent mobiles phones in India are vulnerable to cyber-attacks. These events are pushing back the efforts being made by the Govt. for digital initiatives.
- f) **Data Protection:** India is lacking legislatives measures for Data Protection for years. Recently, a bill in this regard has been passed by the Parliament,

the efficacy of which is yet to be seen.

- g) Lack of Awareness Programs: People are still in wait for awareness programs at mass levels. It has been often observed that the budgets allocated towards a particular program lapsed due to the reasons that it is not used by the beneficiaries. It is not the point that beneficiaries are less in number but the fact is that the spread of awareness is lacking that needs to be addressed instantly.

Conclusion

Mass awareness of digital initiatives and the growth of the rate of digital literacy is the immediate need of the hour. The Digital India Act, 2023 enacted by the Parliament aims to address the loopholes of the I.T. Act. Artificial Intelligence, use of drones, Blockchain Technology can be explored by the Govt. to be employed for delivery of services to the people under its E-Kranti initiative of Digital India Program. To safeguard the personal data of the people, Data Protection law pending in the Parliament for years has been cleared in August, 2023 which laid down legislative provisions for protection of data, the effect of which needs to be evaluated. The Digital Personal Data Protection Act, 2023 has potential to enhance the trust level of the people for adopting the digital initiatives of the Govt. but the provisions of the Act needs to be amended from time to time in view of the recent developments in the digital era and the cyber space. E-Kranti, as the name suggests, can bring a huge revolution in the society if it is backed by strong political will, needful financial support, mass awareness campaigns and enhanced digital literacy standards apart from full-fledged cyber security and safety of personal data of the people. This piece of research may divert the attention of the policymakers in resolving the practical limitations which are hindering the growth of E-Governance and consequently, the good governance.

Further studies can be pursued by comparing and taking into consideration the best practices and regulations ongoing in the countries scoring at peak in good governance indices.

Declaration of Interest

The author and the co-author declared no potential conflict of interest with respect to research, authorship, and/or publication of this article.

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Organisational Citizenship Behaviour and Employee Engagement: A Focus on the Non-Profit Sector Analysis

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Saloni Jain

Research Scholar, Dept. of Commerce & Mgt., IIS, Jaipur (Rajasthan)

T.N. Mathur

Professor, Dept. of Financial Studies & School of Commerce, IIS-(Deemed to be University), Jaipur (Rajasthan)

Mamta Jain

Professor, Dept. of EFM, Rajasthan University, Jaipur

Abstract

Employee acts of generosity that extend further than what is required of their jobs while improving the overall efficiency of the organisation have been referred to as "organisational citizenship behaviour". The extent of psychological and emotional dedication that employees demonstrate to their corporation can be described as engagement among employees. Considering the non-profit sector brings distinctive challenges as well as prospects for stimulating such conduct, it is crucial that such events be addressed. The correlation between OCB & worker involvement in the non-profit sector has been researched by investigators. This study adopts a survey approach & an empirical design to collect information concerning 312 employees from several non-profit organisations in Rajasthan. Workplace engagement & OCB have been discovered to significantly link, indicating employees who reflect larger amounts of OCB also tend to be prone to be engaged at workplace. The present investigation complements to a reservoir of research through offering an exhaustive understanding of the correlation between OCB & worker engagement, in particular the realm of organisations without profit.

Keywords: Organizational Citizenship Behavior, Employee Engagement, Non-profit Sector, OCB, EE

Corresponding author:

Saloni Jain, Research Scholar, Dept. of Commerce & Mgt., IIS, Jaipur Rajasthan

Introduction

“Organizational Citizenship Behavior (OCB)” and Employee Engagement have garnered significant attention in the management and organizational studies literature over the past few decades (Bakker & Bal, 2010; Podsakoff et al., 1996). Both constructs are vital in understanding employee behavior and its impact on overall organizational performance. The non-profit sector, in particular, faces unique challenges and opportunities in fostering these behaviors due to its distinctive mission-driven nature and reliance on voluntary commitment. The term "Organisational Citizenship Behaviour (OCB)" refers to voluntary actions carried out by staff members apart from the scope of their job that have an advantageous effect on the everyday operations of the business (D. W. Organ, 1988). Mentoring coworkers, engaging on additional tasks, & generating an enjoyable working environment have been multiple instances of OCB practices (Tambe, 2014). Research has demonstrated that OCB leads to improved organizational performance by enhancing co-workers and managerial productivity, reducing the need for supervision, and fostering overall resource efficiency (Podsakoff et al., 2000).

Employee Engagement, on the other hand, is defined as the emotional and cognitive commitment employees demonstrate towards their organization (Kahn, 1990; Schaufeli, 2002). Employees engaged with organization culture are characterized by their high levels of liveliness, commitment, & absorption in their work (Bakker & Bal, 2010). Excellent business results like improved satisfaction with employment, increased retention of personnel, and greater productivity all have been connected to engagement among workers (Harter, Schmidt, & Hayes, 2002). The non-profit sector, comprising organizations that primarily operate for social, educational, or charitable purposes, is a critical component of modern (Salamon et al., 2017). According to the Global Non-profit Index, the non-profit sector contributes approximately \$2.2 trillion to the global economy. Non-profit organizations often rely on volunteers and employees who are intrinsically motivated to work towards their mission (Finkelstein & Penner, 2004). As a result, understanding and enhancing OCB and Employee Engagement in the non-profit sector is essential for organizational effectiveness and the successful achievement of social impact.

Existing research on such connection among OCB & engagement of workforce has predominantly focused on the for-profit sector (“Christian, Garza, & Slaughter, 2011; Rich, Lepine, & Crawford, 2010”). However, the unique characteristics of the non-profit sector, such as its emphasis on intrinsic motivation and mission-driven objectives, suggest that the dynamics between OCB and Employee Engagement may differ in this context (Grant, 2008). Moreover, given the reliance of non-profit organizations on voluntary commitment, understanding the factors that influence OCB

and Employee Engagement is vital for these organizations to achieve their goals effectively (Salamon, 2012).

By examining the unique characteristics of the non-profit sector, this study can provide valuable insights for both researchers and practitioners. Researcher comprehension of the relationship between OCB & employee involvement is going to be boosted by results, since they emphasise several factors that are relevant to both of these concepts in a centred around missions setting. The results of this research may inspire the creation of particular approaches meant for encouraging a more engaged devoted personnel for practitioners, especially those in managerial positions within organisations that are nonprofit. Given the critical role that non-profit organizations play in addressing societal challenges, understanding the factors that influence OCB and Employee Engagement is essential for optimizing their impact. An engaged and committed workforce that exhibits OCB can not only improve overall organizational performance but also contribute to more effective service delivery and the achievement of organizational missions (Kong & Ramia, 2010). Therefore, findings of this study hold significant implications for overall effectiveness and success of non-profit organizations in fulfilling their social responsibilities.

Literature review

“Organizational Citizenship Behavior (OCB)”

When "organisational citizenship behaviour (OCB)" was first characterised by Organ, (1988), it represented personnel optional acts that went farther than the call of employment & benefited the overall efficiency of the company's operations. The character traits of OCB involve offering a help to coworkers, implementing on unexpected obligations maintaining an optimal work ambience. as discretionary actions performed by employees that extend beyond their formal job requirements and contribute positively to overall organizational functioning. OCB is characterized by behaviors such as helping colleagues, taking on additional responsibilities, and promoting a positive work environment (Williams & Anderson, 1991). These behaviors can enhance organizational effectiveness through improved coworker and managerial productivity, reduced need for supervision, and increased resource efficiency (Podsakoff et al., 2000). Various antecedents of OCB have been identified in the literature. Some key factors include job satisfaction (Williams & Anderson, 1991), organizational commitment (Meyer et al., 2002), perceived organizational support (Eisenberger et al., 1986), and transformational leadership (Bass & Bass Bernard, 1985; Podsakoff et al., 1996). In addition, OCB & personality traits such as conscientiousness and agreeableness are completely linked (D. W. Organ & Ryan, 1995).

Employee Engagement

Employee Engagement has been defined as the emotional and cognitive commitment employees demonstrate towards their organization (Kahn, 1990; Schaufeli et al., 2002). Engaged employees are characterized by their high levels of energy, dedication, and absorption in their work (Bakker & Bal, 2010). “Employee Engagement has been linked to various positive organizational outcomes, including increased job satisfaction, higher employee retention, and enhanced productivity (Harter et al., 2002)”. Several factors have been found to influence Employee Engagement in the literature. Some of the most prominent antecedents include job resources (e.g., social support, feedback, autonomy) (Bakker et al., 2007), perceived organizational support (Rhoades & Eisenberger, 2002), leadership styles (e.g., transformational leadership) (Tims et al., 2011), & suitable person-organization (Brown et al., 2005). Several factors found influencing Employee Engagement in the literature. Bakker (2007) highlighted the role of social support, feedback, and autonomy, in promoting Employee Engagement. Their Job Demands-Resources Model suggests that these resources can foster engagement by buffering the negative effects of job demands and facilitating employees' achievement of work goals. Research has established favourable correlation between employee engagement & their perception of their employer's appreciation for their work & concern for their welfare (Rhoades & Eisenberger, 2002). Perceived organizational support can lead to increased feelings of obligation and a stronger desire to reciprocate through higher engagement.

Transformational leadership, characterized by inspiring, motivating, and developing employees, has been shown to have a positive impact on Employee Engagement (Tims et al., 2011). Leaders who exhibit transformational leadership behaviors can create an environment where employees feel supported and inspired to engage more fully in their work. “Kristof-Brown et al., (2005) argued that the compatibility between an individual's values, goals, and characteristics and those of the organization can influence Employee Engagement. When employees perceive a high degree of fit with their organization, they are more likely to feel a sense of belonging and commitment, which in turn fosters engagement. In the context of the non-profit sector, understanding the factors that drive Employee Engagement is crucial, as employees in this sector are often motivated by a strong sense of purpose and a desire to make a difference in society (Penner, 2002)”. This study aims to examine Employee Engagement in the non-profit sector by assessing its relationship with OCB, as well as identifying the specific factors that contribute to engagement within this unique context. To achieve this, the survey methodology has included established measures related to engagement of employees such as “Utrecht Work Engagement Scale (UWES)” (Schaufeli, 2006), which will provide a reliable and valid assessment of engagement levels among non-profit employees.

Relationship between OCB and Employee Engagement

The relationship between OCB and Employee Engagement has been investigated in numerous studies. “Research has suggested a positive relationship between the two constructs, indicating that employees who exhibit higher levels of OCB are much engaged in their work (Christian et al., 2011; Rich et al., 2010)”. This relationship can be explained by the fact that engaged employees go beyond their job requirements & exhibit discretionary behaviors (i.e., OCB) that benefit the organization (Bakker & Bal, 2010).

Furthermore, some studies have found that connection amongst OCB & Employee Engagement is bidirectional, suggesting that engaging in OCB may also lead to higher levels of Employee Engagement (Halbesleben & Wheeler, 2008). This reciprocal relationship can be attributed to the social exchange theory (Blau, 1964), which posits that employees who engage in OCB may receive positive feedback, social recognition, or other forms of support from their colleagues and supervisors, which in turn promotes their sense of engagement with the organization. According to published research, there is a positive correlation between OCB & workforce engagement, with employees who are engaged more likely to display OCB and vice versa. The majority of research, nevertheless, has been on the for-profit industry, emphasising the necessity for studies that examine this relationship in the particular setting of the non-profit sector.

Objectives

- Examination of relationship amongst “Organizational Citizenship Behavior (OCB)” & Employee Engagement in Non-profit Sector.
- Exploration of factors that influence “Organizational Citizenship Behavior” & Employee Engagement in the non-profit sector.
- Examining the extent of “organizational citizenship behavior” exhibited in non-profit sector.

Methodology

Research Design

To investigate the association between "Organisational Citizenship Behaviour (OCB)" & Employee Engagement in the non-profit sector, this study used a method based on quantitative research. Data was obtained from a random selection of 312 employees who employed for non-governmental organisations within Rajasthan using an exploratory method.

Population and Sampling

Employees working in non-profit organizations were considered as population for this

study. “A stratified random sampling technique was employed to ensure the representativeness of the sample”. Non-profit organizations were stratified based on their size (small, medium, and large) and mission focus (e.g., education, healthcare, social services). From each stratum, sample of organizations was randomly selected, & within each organization, employees were approached randomly and inquired for this study.

Data Collection

Data was collected using an online self-administered questionnaire. The questionnaire consisted of two sections: (1) measures of OCB and (2) measures of Employee Engagement. Demographic information included age, gender, education level, job position, tenure, and type of non-profit organization.

“OCB was measured using the scale developed by Podsakoff et al., (1990), which consists of 24 items assessing five dimensions of OCB: altruism, conscientiousness, sportsmanship, courtesy, and civic virtue”. Respondents asked to rate their agreement with each statement ranging from 1 to 5 where 1 stand for strongly disagree & 5 stands for strongly agree.

Employee Engagement was assessed using the “Utrecht Work Engagement Scale (UWES)” developed by (Schaufeli et al., 2006). The UWES consists of 17 items measuring three dimensions of work engagement: “vigor, dedication, and absorption”. Participants have rated their agreement for each statement ranging from 1 (never) to 5 (always).

Analysis of collected data

Both inferential and descriptive statistics have been employed for examining the information that was obtained. The study's characteristics & levels of OCB & engagement among workers have been rounded up using descriptive stats such as averages & deviations from average. With the goal to investigate the connections between OCB & engagement among staff along with determine the variables impacting both of these concepts in the non-profit sector, inference-based statistics, such as connection & regression analyses, have been used.

Results

Table 1: Relationship between Employee Engagement & OCB

<i>Correlations</i>								
		“Altruism”	Conscientiousness	Sportsmanship	Courtesy	Civic Virtue	Vigor	Dedication
Conscientiousness	“Pearson Correlation”	.767**						
	“Sig- two tailed”	.00						
Sportsmanship	“Pearson Correlation”	.823**	.813**					
	“Sig- two tailed”	.00	.00					
Courtesy	“Pearson Correlation”	.831**	.813**	.812**				
	“Sig- two tailed”	.00	.00	.00				
Civic Virtue	“Pearson Correlation”	.803**	.749**	.814**	.771**			
	“Sig- two tailed”	.00	.00	.00	.00			
Vigor	“Pearson Correlation”	.796**	.810**	.814**	.789**	.783**		
	“Sig- two tailed”	.00	.00	.00	.00	.00		
Dedication	“Pearson Correlation”	.820**	.760**	.833**	.781**	.810**	.776**	
	“Sig- two tailed”	.00	.00	.00	.00	.00	.00	
Absorption	“Pearson Correlation”	.822**	.786**	.789**	.826**	.793**	.837**	.801**
	“Sig- two tailed”	.00	.00	.00	.00	.00	.00	.00
**. Correlation is significant at the 0.01 level (2-tailed).								

The correlation analysis reveals significant positive relationships between the dimensions of “Organizational Citizenship Behavior (OCB)” and Employee Engagement, showcasing a strong interplay between these constructs in the non-profit sector. The correlations range from .749 to .837, all significant at the 0.01 level (2-tailed), indicating a robust association between higher levels of Employee Engagement (vigor, dedication, and absorption) and enhanced expressions of OCB (altruism,

conscientiousness, sportsmanship, courtesy, and civic virtue). The strong correlations across all dimensions highlight the critical role of Employee Engagement in promoting OCB in non-profit organizations. By fostering engagement, organizations can benefit from improved teamwork, increased commitment, and better overall performance. Moreover, engaged employees are more likely to exhibit altruistic behaviors, display conscientiousness in their work, exhibit sportsmanship in challenging situations, demonstrate courtesy towards colleagues, and actively participate in organizational activities with a sense of civic virtue.

Findings from this analysis highlight the vital importance of cultivating Employee Engagement to drive various aspects of OCB in non-profit organizations. By implementing strategies that promote vigor, dedication, and absorption, organizations can establish a more effective, harmonious, and collaborative work environment. This, in turn, can significantly contribute to the achievement of their social missions and create a positive feedback loop that benefits both the organization and its employees. Ultimately, fostering Employee Engagement not only supports the realization of organizational objectives but also empowers employees to reach their full potential, leading to a more committed, motivated, and high-performing workforce in the non-profit sector.

Table 2: Impact of Employee Engagement on OCB

	Altruism		Conscientiousness		Sportsmanship		Courtesy		Civic Virtue	
R ²	0.762		0.714		0.769		0.737		0.731	
	β	Sig	β	Sig	β	Sig	β	Sig	β	Sig
Intercept	.341	.007	.377	.007	.326	.009	.510	.000	.507	.000
Vigor	.216	.000	.410	.000	.336	.000	.212	.000	.235	.000
Dedication	.381	.000	.239	.000	.452	.000	.247	.000	.395	.000
Absorption	.336	.000	.247	.000	.130	.024	.414	.000	.251	.000

The results of the analysis demonstrate that all three dimensions of Employee Engagement (vigor, dedication, and absorption) are significantly related to the five dimensions of “Organizational Citizenship Behavior (OCB)” in the non-profit sector, namely “altruism, conscientiousness, sportsmanship, courtesy, and civic virtue”. R² values indicate that the model explains a substantial proportion of the variance in each OCB dimension: altruism (76.2%), conscientiousness (71.4%), sportsmanship (76.9%), courtesy (73.7%), and civic virtue (73.1%).

Findings indicates that dedication has the strongest positive influence on altruism among the Employee Engagement dimensions ($\beta = 0.381$, $p < 0.05$). Employees who

are highly dedicated to their organization are more likely to exhibit altruistic behaviors, such as helping their colleagues and going out of their way to support the team. Findings also suggests that highly dedicated employees are much inclined in displaying conscientious behaviors ($\beta = 0.452$, $p < 0.05$), such as being thorough and diligent in their work, which can lead to better overall performance in the non-profit sector. Findings further indicate that employees who are highly absorbed in their work are more likely to display courteous behaviors ($\beta = 0.414$, $p < 0.001$), such as being considerate and respectful toward their colleagues, which can help maintain a positive and collaborative work atmosphere. It was also found that highly dedicated employees are more likely to engage in civic virtue ($\beta = 0.395$, $p < 0.05$), meaning they actively participate in organizational activities and express their opinions for betterment of the organization.

Discussion

The present study aimed to investigate the relationship between “Organizational Citizenship Behavior (OCB)” and Employee Engagement in the non-profit sector, focusing on the influence of engagement dimensions (vigor, dedication, and absorption) on “OCB dimensions (altruism, conscientiousness, sportsmanship, courtesy, and civic virtue)”. Findings offer valuable insights into the strong interplay between these constructs and emphasize the crucial role of Employee Engagement in fostering a culture of OCB in non-profit organizations. Findings of this paper revealed significant positive relationships between all dimensions of Employee Engagement and OCB. These robust correlations suggest that employees who exhibit strong dedication, & absorption are more inclined towards OCB, contributing positively to their organization's overall effectiveness and success. Engaged employees not only demonstrate altruistic behaviors and conscientious work practices but also display greater sportsmanship in challenging situations, showcase courtesy towards their colleagues, and actively participate in organizational activities with a sense of civic virtue.

These findings align with previous research indicating that Employee Engagement is a critical driver of OCB in various organizational contexts (Bakker & Demerouti, 2008; P. Organ & Podsakoff, 2006). By extending this understanding to the non-profit sector, this work backs literature related to positive impact of Employee Engagement on organizational performance and effectiveness. The strong associations between Employee Engagement dimensions and OCB dimensions observed in this study highlight the importance of cultivating engagement to enhance various aspects of OCB in non-profit organizations. By implementing strategies that promote vigor, dedication, and absorption, organizations can establish a more effective, harmonious, and collaborative work environment. This, in turn, can significantly contribute to the

achievement of their social missions and create a positive feedback loop that benefits both the organization and its employees. Furthermore, the study's findings have practical implications for non-profit organizations seeking to improve their overall performance and effectiveness. By identifying the factors that drive both OCB and Employee Engagement in this context, non-profit organizations can develop targeted strategies to foster a more engaged and committed workforce, which in turn can contribute to achieving their social missions more effectively. Encouraging Employee Engagement not only supports the realization of organizational objectives but also empowers employees to reach their full potential, leading to a more committed, motivated, and high-performing workforce in the non-profit sector.

In conclusion, this study offers valuable insights into the relationship between OCB and Employee Engagement in the non-profit sector and underscores the importance of fostering engagement to enhance various aspects of OCB. By investing in strategies that promote vigor, dedication, and absorption, non-profit organizations can create a more effective and cooperative work environment, ultimately contributing to the achievement of their social missions. Findings from this research not only contribute to the existing body of literature on the topic but also provide practical guidance for non-profit organizations seeking to optimize their workforce and achieve their goals more efficiently.

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Digital Initiatives by ICAR Institutes for Marketing their Information Products and Services: An Overview

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Sonika

Research Scholar, Dept. of Library & Information Science, M.D. University, Rohtak

Sanjiv Kadyan

Associate Professor and Head, Dept. of Library & Information Science, M.D. University, Rohtak

Abstract

The increasing use of technologies makes a significant impact in every field. Digital tools and techniques are becoming increasingly crucial in almost every sphere of life, and agriculture information systems are no exception. The Indian Council of Agricultural Research (ICAR) institutes spend much of their budget on information products and services. Therefore, marketing these resources and services for maximum use of these information products and services is necessary. Using digital tools and techniques helps ICAR institutes to promote their resources. The leading digital initiatives taken by ICAR institutes are mobile apps, digital repositories, the use of social media, online publications, online database portals, etc. The present paper presents an overview of the significant digital initiatives of ICAR institutes to market their information products and services.

Keywords: Digital Initiatives, marketing, ICAR, information products and services

Corresponding author:

Sonika, Research Scholar, Dept. of Library & Information Science, M.D. University, Rohtak

Introduction

“Agriculture is the backbone of the Indian Economy”- said Mahatma Gandhi six decades ago. Even in the present day, agriculture remains vital to India's economy, serving as the primary means of livelihood for rural communities. It contributes 16% to the GDP and employs around 52% of the population (Mandi & Patnaik, 2019). The development of internet usage and information and communication technology has significantly affected every field of life. Increasing the information access process and reducing the knowledge gap within the farming community are vital tasks that demand much time to maximise agricultural productivity. Digital technology usage can change and support the Indian agriculture sector, which will ultimately help all farmers. The use of ICT in marketing information products and services facilitates the faster dissemination of information about various useful information products and services of ICAR among stakeholders.

Car Institutes

ICAR, or the Indian Council of Agricultural Research, is an autonomous organisation formed in 1929 and works under the Ministry of Agriculture and Farmers Welfare, Government of India. It coordinates agricultural research and education nationwide through institutes, research centres, and universities. ICAR focuses on enhancing agricultural productivity sustainability and addressing challenges in the sector.

Various research institutes specialized in crop sciences, dairy, fisheries, and animal science are administered by the Indian Council of Agricultural Research (ICAR) to improve agricultural productivity and sustainability in India; these institutes—IARI, NDRI, ATARI, etc. conduct research, create technology and offer instruction and training. Through their efforts, they advance research, technology development, and education, making a substantial contribution to the growth and sustainability of the agricultural sector.

Information Products and Services

ICAR institutes libraries provide various information products and services to satisfy the requirements of users, decision-makers, researchers, and students in the agricultural sector. These libraries offer a wide range of information products, such as newsletters, journals, research papers, reports, databases, etc., and information services, such as consultation, ready reference, online advisory services, and many others.

Concept of Marketing

The marketing concept originated in the United States society in the 1950s. Before this, the main focus was on producing the products without knowing the consumer needs or demands. The market concept is based on customer satisfaction, which involves first

identifying the customer needs and requirements and then attempting to meet those needs (Rowley, 1995). Different institutes defined marketing differently. Some prominent definitions of marketing are as follows:

The Chartered Institute of Marketing (2023) defined marketing as “Marketing is the management process responsible for identifying, anticipating, and satisfying customer requirements profitably”.

American Marketing Association (2017) defined marketing as “Marketing is the activity, set of institutions, and processes for creating, communicating, delivering, and exchanging offerings that have value for customers, clients, partners, and society at large”.

Major Digital Initiatives for Marketing Information Products and Services

Digital tools can play a vital role in helping agricultural libraries effectively market their information products and services. Incorporating digital tools into agricultural research libraries can significantly enhance their marketing. Major digital initiatives for marketing information products and services are as follows:

Mobile Apps

Mobile apps are a potent tool for marketing information products and services in agriculture research due to their accessibility, interactivity, and ability to deliver multimedia content efficiently. They provide offline access, enabling users in remote areas to access critical information (Madhuri et al., 2023). Additionally, mobile apps facilitate data collection and analysis, leading to a better understanding of users and more targeted marketing efforts. They also foster community building by connecting stakeholders and enabling knowledge exchange and collaboration. Some important mobile applications developed by ICAR are as follows:

Kisaan 2.0: KISAAN 2.0 is an innovative app developed to revolutionize Indian agriculture by integrating over 300 agricultural-related apps from ICAR Institutes and can be accessed from https://play.google.com/store/apps/details?id=net.iasri.kisaan2.o&hl=en_IN. It offers a single interface in multiple Indian languages, empowering farmers to access comprehensive knowledge on crops, livestock, and more. The app aims to leverage Smartphone penetration to provide farmers with advanced agricultural technologies, seeds, and livestock information, thus making farming more convenient and efficient. Overall, KISAAN 2.0 represents a significant step towards digitizing agriculture and improving farmers' livelihood.

ICAR Technologies: The ICAR Technologies mobile app was created by ICAR on 21st December 2019 and can be accessed from

<https://play.google.com/store/apps/details?id=com.icartechnologies>. It consists of approved innovations produced by ICAR institutions in horticulture, social sciences, dairy, veterinary medicine, social science, crop improvement, and natural resource management. Using this application, we can quickly find relevant technologies using keyword-based searching. The ICAR Technology Repository, created as part of the ICAR Research Data Repository for Knowledge Management effort, is the foundation for this application.

FFP: The Farmer First Programme (FFP) is an initiative by ICAR to prioritise smallholder farmers' needs and address the complexities and risks they face. It emphasizes enhancing the interaction between farmers and scientists and can be accessed from <https://play.google.com/store/apps/details?id=com.ffpapp>. FFP introduces new concepts like climate-resilient agriculture, resources management, production management, market and supply chains, information systems, and innovation. The program places farmers at the centre of research, involving them in problem identification, experiment prioritization, and management of their conditions. FFP focuses on the farmer's Farm, Resources, Innovations, Science, and Technology.

KVK App: The app enables users to register and choose a primary KVK (Krishi Vigyan Kendra), accessing information about KVKs based on their state and district. Users can access the app from <https://play.google.com/store/apps/details?id=com.kvk>. They can explore these centres' facilities and obtain a package of practices for various agricultural sectors. Additionally, they can submit farm-related queries to experts, receive solutions, and stay informed about upcoming and past events organized by KVKs. Users can download agro-meteorological advisories and access agro-commodity prices from the eNAM portal. The app lets users change their primary KVK and visit the KVK portal directly.

Online Publications

Online publications are electronic resources that users can access via the Internet. These resources include research papers, magazines, newspapers, academic journals, and e-books. To give users access, libraries pay for databases and online repositories that allow users to search, view, and download content for their use. Online publications have various benefits, including easy access to information, searchability, ease, and better availability. Major online publications in ICAR institutes' libraries are as follows:

E-Newsletters

Newsletters are vital for marketing research libraries, serving as a key communication tool to engage patrons, promote services, and showcase resources. They facilitate user interaction, disseminate information about library events and acquisitions, and build

stakeholder relationships. By providing valuable content and fostering engagement, newsletters help libraries enhance visibility, increase user participation, and fulfil their mission of supporting research and scholarship. ICAR publishes three print and electronic newsletters, which can be accessed from <https://icar.org.in/newsletters>.

ICAR News: The quarterly newsletter, initiated in 1995, serves as a comprehensive source of information in agricultural science and technology. It highlights breakthroughs, promising technologies, and innovative practices within the agricultural sector. Additionally, it features new initiatives to enhance agricultural productivity and sustainability, along with strategies for efficiently managing natural resources.

The ICAR Reporter: The ICAR Reporter was revived in 1995 after an 8-year gap, and it serves as a platform to report on significant activities at the headquarters of the ICAR, its institutes, and research stations. Its primary objective is to reduce communication gaps between ICAR staff at headquarters and its institutes, covering news related to workshops, reports, reforms, personnel changes, and awards and addressing the needs of scientists, researchers, and administrators.

Agri Rise: Agri Rise is a quarterly English newsletter. Agri Rise newsletter is issued with a specific theme every time. The theme of Agri Rise is often related to new technologies, advancement, etc. Dr RC Agarwal is the chief editor of Agri Rise at present.

E-Journals and E-Magazines

E-journals and E-magazines are digital versions of print journals accessible on electronic devices like computers, laptops, and smartphones. They contain the same content as their print counterparts but in a digital format. They can be accessed through subscription services, libraries, or individual purchases on various platforms and apps. ICAR has published various journals and magazines in print and digital format to update its information products and services for its stakeholders. Some of these are as follows:

The Indian Journal of Agricultural Sciences: The Indian Journal of Agricultural Sciences is a scholarly publication specializing in agricultural research and related fields. It covers various topics such as crop production, soil science, agricultural economics, plant breeding, agronomy, horticulture, and animal husbandry. This journal serves as a platform for researchers, academics, and professionals to publish their work, exchange knowledge, and advance agricultural science in India and across India. It plays a significant role in disseminating new research and fostering innovation in the agricultural field.

The Indian Journal of Animal Sciences: The Indian Journal of Agricultural Sciences is a comprehensive publication of the Indian Council of Agricultural Sciences. It covers

various topics, including animal breeding, immunology, genetics, biotechnology, medicine, pharmacology, diseases, histology, pathology, physiology, surgery, nutrition, and various animal products. It disseminates innovative research in agricultural sciences, particularly in animal science.

Indian Journal of Extension Education: This Journal of ICAR is a prestigious peer-reviewed academic journal dedicated to disseminating original research papers, research outcomes, research notes, and research tools in the extension education area and related disciplines since 1965. The journal is published quarterly and has been listed in the UGC CARE list since January 2023. It is indexed in numerous reputable databases, including SCOPUS, CABI, Google Scholar, and EBSCO.

Kheti: This is a popular Hindi monthly magazine of ICAR, which began publication in 1948 and has been regularly published since, featuring articles by eminent scientists within the ICAR research network. The magazine covers various topics, including integrated agriculture, fisheries, agro-forestry, beekeeping, crops, animal husbandry, cropping systems, commercial farming, crop health, new agricultural technologies, agricultural engineering, and soil improvement. Furthermore, this magazine publishes 3 to 4 special issues annually on specific topics of interest.

SOCIAL MEDIA

Social media platforms have transformed the marketing landscape, offering ICAR institutes and libraries unprecedented opportunities to promote their information products and services. Social media platforms like YouTube, Twitter, Facebook, Instagram, and LinkedIn have millions of users. For research libraries, having a presence on these platforms extends their reach beyond physical locations, connecting with users who might not otherwise know about their resources and services. Social media has many benefits, i.e., increased visibility, better user interaction, feedback and surveys, and performance gathering. ICAR institutes take the following steps to improve its visibility in social media:

Facebook page: ICAR has a Facebook page named “Indian Council of Agricultural Research” with 231k followers. <https://www.facebook.com/InAgrisearch/>

Twitter account: ICAR has had a Twitter (now X) account since June 2011, handling @icarindia, and has 235k followers. <https://twitter.com/icarindia>

YouTube: ICAR has its YouTube channel named “Indian Council of Agricultural Research” and has 79.6k subscribers and 363 videos to inform users about their resources and services. <https://www.youtube.com/user/icarindia>

Instagram: ICAR has its Instagram account named “Indian Council of Agricultural Research” and has 3807 followers on it.

<https://www.instagram.com/officialicarindia/>

INSTITUTIONAL WEBSITES

Websites are an essential digital tool for marketing in research libraries, serving as a platform for communication, showcasing offerings, and engaging users. They disseminate information about information resources and information services to ensure accessibility, showcase specialized services, foster community interaction, and promote events and seminars. Ultimately, websites enhance communication, engagement, and promotion, increasing the visibility and impact of library services. ICAR institutes have websites that serve as a crucial tool for marketing information products and services in research libraries, offering a platform to communicate with target audiences and showcase offerings effectively. ICAR has its website at <https://icar.org.in>. Its various institutes also have their websites.

DIGITAL REPOSITORIES

Digital repositories are online platforms or databases where research outputs, such as articles, reports, datasets, and other scholarly materials, are stored and accessible to users. In agriculture, these repositories play a vital role in many ways. Some of the notable digital repositories managed by ICAR include:

ICAR Krishi: ICAR Krishi is an online repository that provides access to research articles, extension materials, technical bulletins, and other essential publications of ICAR institutes and agricultural universities. It covers various topics related to agriculture, allied sciences, and rural development. <https://krishi.icar.gov.in/>

NAL Institutional Repository: The National Agricultural Library (NAL) Institutional Repository is an online platform that offers access to a vast collection of agricultural research documents, reports, articles, theses, and more. It includes resources from ICAR institutes, agricultural universities, and other research organizations.

ICAR Data Repository for Knowledge Management (IDRKM): IDRKM is a digital repository that provides research outputs, reports, and other knowledge products ICAR institutes produce. It facilitates data sharing and collaboration among researchers and other stakeholders in the agricultural sector.

ICAR Research Data Repository: This repository facilitated stakeholders to store and share research data generated by ICAR-funded projects. It aims to promote transparency, reproducibility, and reuse of research data to advance agricultural research and innovation.

Krishikosh: Krishikosh is an online repository managed by the Indian Council of Agricultural Research (ICAR) that stores and shares Indian agricultural research materials like publications and theses. It is a hub for various agricultural organizations

to collaborate, making agricultural information easily accessible to researchers, students, and farmers. <https://krishikosh.egranth.ac.in/home>

Krishi Prabha: The Indian Council of Agricultural Research maintains an institutional repository of Indian agricultural doctoral dissertations. It is a systematic and effective effort to maintain a national repository of these resources, convert them into digital form, and make them accessible online. Krishi Prabha enhanced the potential use of doctoral dissertations in agriculture education. <https://lib.icar.gov.in/E-Resources/KrishiPrabha>

2.6 ONLINE PORTALS

Online portals in agricultural libraries are digital platforms that provide access to agricultural information, various research publications, databases, and educational resources. They help in agricultural research and education and foster convenient access to a wide range of resources worldwide. The major online portals of ICAR are as follows:

Farmers' Portal: The Farmers' Portal is a digital platform designed to gather data on agriculture, horticulture, animal husbandry, and fisheries for Indian farmers. It provides a one-stop solution where farmers can access location-specific information, from village to state levels, in various formats, including text, email, audio, and video. This platform also ensures accessibility and convenience for farmers by providing various language preferences.

M-Kisan portal: The M-Kisan SMS Portal enables agricultural government organizations to deliver adequate information in farmers' language, practices, and location. Over 327 crore messages have been sent since its inception, driving inquiries in Kisan Call Centers for further assistance (Government of India, n.d.). It provides the following services to farmers:

- Interactive Voice Response System (IVRS)
- Kisan call center
- Queries on portal
- Pull SMS

Agricultural education portal: The ICAR Agricultural education portal can be accessed from <https://education.icar.gov.in/>. It informs farmers and other stakeholders about various education programs, courses, events, and other e-resources.

CONCLUSION

Information Communication and technologies (ICT) are significantly changing almost

every field of life. Digital tools and techniques have been proven to be a boon to farmers and people in the allied sectors. ICAR institutes use digital tools to promote their information products and services to their stakeholders. These digital tools are beneficial in providing the required information to users at the right time. ICT is beneficial for agricultural libraries in effectively marketing their resources. It can be used to create online catalogues, develop user-friendly websites, engage with users on social media, send email newsletters, optimize their website for search engines, host virtual events, develop mobile applications, share valuable content, and use analytics to track user behaviour. These strategies help the library reach a wider audience, enhance user engagement, and improve its credibility.

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Strategic Analysis of Corporate Restructuring: A Critical Study in Present Perspectives

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Kavita Devi

Assistant Professor South Point College of Law, Sonipat

Satish Kumar

Research Scholar, Maharshi Dayanand University, Rohtak

Abstract

Corporate restructuring is a vital strategic tool in today's business environment, marked by constant change and inherent dynamism. It enables organizations to address financial requirements, improve operational efficiencies, adjust to variable market conditions, and ultimately maintain a competitive edge. This intricate process encompasses multiple strategic actions, including divestitures, capital restructuring, operational modifications, and mergers and acquisitions. Restructuring initiatives are categorized into two primary types: reactive, which seeks to alleviate immediate financial threats, and proactive, which aims to improve performance and align the organization with its long-term strategic goals. The strategic redistribution of resources to improve value creation across multiple dimensions—financial, operational, organizational, and transactional—is the fundamental principle of restructuring. Financial restructuring emphasizes the strategic management of debt and the prudent utilization of equity financing to alleviate financial distress. The objective of operational restructuring is to improve core business processes and eliminate inefficiencies. The objective of organizational restructuring is to enhance decision-making effectiveness through the reorganization of management structures and reporting hierarchies.

Keywords: Corporate, Restructure, financial threats, merger

Corresponding author:

Kavita Devi, Assistant Professor South Point College of Law, Sonipat

Introduction

In contemporary business terminology, corporate restructuring functions as an essential and dynamic instrument. This initiative is intricate and strategic, encompassing various activities designed to fundamentally transform a company's financial, operational, or structural framework. The main goal is to improve performance, increase adaptability, and strengthen competitiveness in the dynamic global market. Corporate restructuring is an essential process for organizations seeking to adeptly address market challenges, improve operational efficiency, and ultimately augment profitability. The main goal is to enhance profitability, streamline processes, and elevate organizational agility through the strategic reconfiguration of the company's structure, operations, and financial systems.¹ Transactional strategies, including mergers and acquisitions, seek to enhance competitive positioning, expand market reach, and generate synergistic advantages². However, corporate restructuring entails significant challenges. Concerns regarding job security and modifications to established roles frequently provoke resistance to change, particularly among employees and stakeholders. Insufficient communication can result in confusion, diminished morale, and impede the successful implementation of restructuring strategies.³ Furthermore, associated expenses such as legal counsel, financial advisory fees, and severance packages can significantly increase the burden on organizational resources. The integration of cultures in mergers and acquisitions poses a significant challenge that can result in operational disruptions and reduced productivity. Traversing the complex terrain of legal and regulatory compliance adds a further dimension of intricacy and the possibility of unexpected delays, including labor laws, antitrust regulations, and bankruptcy procedures.

A systematic and transparent approach, characterized by proactive stakeholder involvement, clear communication, meticulous planning, and strategic flexibility, is essential for successful restructuring. Organizations can enhance their financial resilience, promote long-term sustainability, and fortify their competitive stance by proactively addressing these inherent challenges via corporate restructuring. Despite inherent challenges, a carefully executed restructuring strategy equips organizations with the necessary resources to survive and thrive in a competitive and volatile

¹ Reverse Mergers as a Restructuring Tool: See Richard A. Booth, *The Promise of Reverse Mergers*, 41 *Sec. Reg. L.J.* 1, 12–14 (2013) (exploring how reverse mergers enable private companies to go public without a traditional IPO).

² Restructuring via Debt-Equity Swaps: See Barry E. Adler, *Bankruptcy and Risk Allocation*, 77 *Cornell L. Rev.* 439, 462–65 (1992) (analyzing the role of debt-equity swaps in financially distressed firms).

³ Golden Parachutes in Corporate Restructuring: See Sean J. Griffith, *Good Faith Business Judgment: A Theory of Rhetoric in Corporate Law Jurisprudence*, 55 *Duke L.J.* 1, 24–27 (2005) (evaluating executive compensation agreements in restructuring scenarios).

business environment.⁴

This process may be commenced internally by executive leadership or divisional management, or externally by entities such as private equity firms.⁵

Restructuring fundamentally involves a series of meticulously coordinated transactions and processes designed to improve a company's efficiency, effectiveness, and resilience. The strategic process is defined by various manifestations, including mergers, acquisitions, amalgamations, compromises, arrangements, and other types of corporate reorganization. Although each has unique objectives and methodologies, they collectively strive for a common goal: the strategic reallocation, optimization, or reconstruction of a company's resources to augment value. This frequently requires substantial modifications to the organization's capital structure, ownership arrangement, operational procedures, or governance mechanisms.⁶

The need for organizations to effectively respond to external pressures and evolving market dynamics is a primary impetus for corporate restructuring. Organizations face numerous challenges, such as increased competition, financial difficulties, or declining performance metrics. Restructuring offers an effective approach to tackle these challenges. The decision to implement a restructuring initiative may stem from defensive motivations, such as countering a hostile takeover attempt or adverse market conditions, or from proactive intentions focused on improving internal processes or optimizing market positioning.

Corporate restructuring is affected by numerous context-dependent factors. In certain cases, the primary motivation is the pursuit of improved operational efficiency. Organizations consistently endeavor to achieve cost-efficient operations, enhance resource allocation, and refine production processes. Ultimately, restructuring enhances profitability and cash flow by optimizing operations, eliminating redundancies, and concentrating on core competencies. The objective is frequently to establish a more agile and streamlined organization adept at promptly responding to

⁴ Impact of Corporate Restructuring on Minority Shareholders: See *Kahn v. M&F Worldwide Corp.*, 88 A.3d 635, 644 (Del. 2014) (establishing the standard for entire fairness review in controlling stockholder transactions during restructuring).

⁵ Cross-Border Tax Issues in Corporate Restructuring: See OECD, *Addressing Base Erosion and Profit Shifting* 21–25 (2013) (analyzing multinational tax avoidance strategies in global corporate restructuring).

⁶ Intellectual Property (IP) Considerations in Restructuring: See Timothy S. Durst, *Intellectual Property and Bankruptcy: Strategies for the Non-Debtor Party*, 62 Bus. Law. 1021, 1027–30 (2007) (examining IP asset transfers and licensing in corporate restructurings).

market variations.⁷

Restructuring typically involves divesting non-essential assets or business divisions, especially during corporate separations or spin-offs. Empirical evidence indicates that these transactions frequently result in the transfer of assets to users with superior capability or higher value. The divestitures enable a concentrated focus on the core business's main objectives, thus improving overall profitability. In contrast, transactions involving high leverage, like leveraged buyouts (LBOs), typically focus on optimizing capital structures to achieve tax efficiencies, enhance managerial incentives, and increase returns on invested capital. The primary objective is to reorganize the financial framework of the organization to improve the efficiency of capital allocation. This may necessitate the reassessment of existing financial agreements or the formulation of new debt instruments.

It is crucial to recognize that corporate restructuring is not a monolithic process. The decision to pursue this endeavor is contingent upon the organization's strategic objectives, specific circumstances, and the current market environment. Organizations may undertake restructuring for various reasons, including resolving financial challenges, gaining a competitive edge, entering new markets, or enhancing organizational agility.

Restructuring occurs in various forms, such as mergers, acquisitions, spin-offs, or realignments within the organizational structure. During a merger or acquisition, organizations consolidate their operations, liabilities, and assets to create a more formidable entity, thereby augmenting their competitive strength. In these situations, restructuring enables the formation of synergies that augment the value of the merged entity, optimize operations, and increase market share. Likewise, spin-offs and divestitures allow organizations to reallocate resources to more profitable sectors and focus on their core business by eliminating non-essential operations.⁸

Changes in a company's ownership structure frequently occur due to restructuring initiatives. The introduction of new investors, acquisitions, or alternative ownership restructuring methods can result in a change in the shareholder composition. The alterations can significantly impact the company's governance, strategic trajectory, and decision-making processes. In certain situations, restructuring can lead to a transfer of control, wherein new stakeholders or management teams assume leadership positions,

⁷ Regulatory Arbitrage in Corporate Restructuring: See Frank Partnoy, *Financial Derivatives and the Costs of Regulatory Arbitrage*, 22 J. Corp. L. 211, 223–26 (1997) (assessing how firms exploit regulatory loopholes in restructuring).

⁸ The Role of Private Equity in Corporate Restructuring: See Steven N. Kaplan & Per Strömberg, *Leveraged Buyouts and Private Equity*, 23 J. Econ. Persp. 121, 130–33 (2009) (discussing the role of private equity firms in acquiring and restructuring companies).

thereby modifying the corporate culture and vision.

Restructuring is not merely a financial adjustment; it is a strategic decision that requires a thorough examination of the organization's long-term objectives. A well-implemented restructuring plan can rejuvenate a business, reveal latent value, and strategically align it for enduring growth. The erosion of value, the decline of shareholder confidence, and the disengagement of employees may result from ineffective implementation or a flawed strategy.

Internal or external expansion strategies can act as catalysts for initiating corporate restructuring processes. Internal expansion frequently entails organic growth, encompassing the acquisition of new assets, the development of novel product lines, or the modernization of technology. This method is generally slower; however, it enables the organization to preserve stability and exercise control efficiently. Conversely, acquiring established companies facilitates rapid growth through external expansion accomplished via corporate restructuring. This restructuring method frequently yields an expanded market presence and improved growth by facilitating immediate access to new markets, products, and resources.

In rapidly consolidating sectors, it is essential to pursue external growth through mergers and acquisitions to ensure ongoing viability. To sustain market share or confront competitive challenges, organizations may require restructuring to acquire competitors or related entities. In these situations, restructuring typically requires a meticulous strategy for integration planning, involving the optimization of resource distribution within the merged organization, while also tackling the cultural and operational differences that may emerge.

In conclusion, corporate restructuring is a complex and essential business strategy that enables organizations to adapt, expand, and maintain their competitive advantage in a constantly changing market environment. Restructuring is a crucial mechanism for modifying a company's future trajectory, whether the strategy is defensive, aimed at reducing external threats, or proactive, focused on enhancing operational efficiency and profitability. The diverse forms and strategies of restructuring, including mergers and acquisitions, divestitures, and capital restructuring, allow companies to capitalize on growth opportunities while addressing their specific challenges effectively.

UNDERSTANDING CORPORATE RESTRUCTURING

Organisations undertake corporate restructuring as a strategic and dynamic endeavour aimed at securing financial stability, improving operational efficiency, and responding to evolving business landscapes. It includes a diverse array of organisational transformations, including modifications to the corporate framework, financial configurations, operational methodologies, and governance structures. Corporate

restructuring serves as an essential mechanism for organisations aiming to maintain their competitive edge and ensure long-term viability, irrespective of the underlying causes such as internal inefficiencies, external market dynamics, or shifts in regulatory frameworks. Restructuring may serve as a forward-thinking approach to seize new opportunities; however, it can equally function as a necessary response to financial difficulties or diminishing market conditions. The process may be characterised as voluntary, where management takes the initiative to enhance resource efficiency and foster growth, or involuntary, arising from the influence of external stakeholders like creditors or regulatory authorities. Corporate restructuring requires careful planning and skilled management, as it encompasses significant strategic considerations, execution challenges, and potential risks, regardless of its motivation.

Types of Corporate Restructuring

Corporate restructuring can be delineated into various categories, each addressing distinct challenges and objectives.

Financial Reorganisation

Financial restructuring represents a deliberate approach aimed at improving a company's financial health through the optimisation of its capital framework and the resolution of liquidity issues. This process holds particular significance when an organisation faces unsustainable financial commitments, declining cash flow, or an overwhelming debt burden. The subsequent strategies are fundamental to the process of financial restructuring:

Debt Restructuring involves the intricate process of engaging with creditors to modify repayment conditions, lower interest rates, or transform existing debt into equity through mechanisms such as debt-for-equity swaps.

Capital Infusion: The method of obtaining alternative financing, engaging investors, or generating funds through the issuance of new equity.

Asset Reallocation: The strategic endeavour of divesting non-core assets to streamline financial obligations and enhance liquidity.

Financial restructuring enhances an organization's enduring viability, liquidity, and solvency by mitigating immediate financial pressures.⁹

Operational Reorganisation

Operational restructuring involves the meticulous enhancement of efficiency, the strategic reduction of costs, and the comprehensive improvement of overall

⁹ S. Ramanujam, Mergers et al.: Issues, Implications and Case Laws in Corporate Restructuring (2012).

performance through the optimisation of internal processes and business functions. This approach is often necessitated by entities facing operational costs, reductions in productivity, or suboptimal workflows. Commonly employed strategies encompass:

Cost optimisation involves the meticulous identification and eradication of superfluous expenditures, the refinement of supply chains, and the strategic renegotiation of supplier agreements.

Workforce Rationalisation involves the meticulous alignment of human resources with overarching strategic objectives, achieved through methods such as restructuring, redeployment, or downsizing.

Process Reengineering: The application of technology and automation to enhance efficiency and eradicate bottlenecks.

Operational restructuring cultivates business models that are leaner and more agile, aligning with the ever-evolving demands of the market and the advancements in technology.

Restructuring of the Institution

Organisational restructuring entails the reconfiguration of governance frameworks, decision-making processes, and hierarchical structures within an organisation to enhance its responsiveness and agility. Transitions in leadership, mergers, or strategic realignments often necessitate this restructuring. The essential elements comprise:

Reducing the Layers of Authority: The endeavour to streamline management structures facilitates swifter decision-making and enhances communication efficacy.

Enhancing the capacity of business units through greater autonomy to foster adaptability: Decentralised Authority.

Role Realignment: The endeavour of recalibrating responsibilities to guarantee their alignment with overarching strategic objectives.

A well-executed organisational restructuring cultivates a culture characterised by efficiency, innovation, and strategic clarity.

Mergers and Acquisitions (M&A)

Mergers and acquisitions represent significant corporate restructuring strategies aimed at realising economies of scale, diversifying portfolios, and consolidating market presence. These transactions may present themselves in numerous forms:

Market Expansion: The strategic acquisition of enterprises within novel geographical territories or diverse customer segments.

The strategy of expanding a product line involves the acquisition or merger with

entities that offer complementary goods or services.

Enhancing efficiency by consolidating redundant functions to lower expenses and boost productivity: Operational Synergies.

While mergers and acquisitions may present significant avenues for growth, the successful integration of these entities is crucial for realising the expected advantages.

Divestitures and Spin-Offs

The deliberate segmentation of business units to sharpen focus and maximise shareholder value encapsulates the fundamental nature of spin-offs and divestitures. Organisations adopt these strategies to: Redirect attention towards fundamental operations: Redirecting non-essential or suboptimal divisions to strengthen core business operations.

Reveal Concealed Potential: Allowing spun-off entities to function independently draws in fresh investors and opens up new market prospects.

To ensure smooth operational transitions and alignment among stakeholders, these transactions require careful planning.

Dissolution and Insolvency

Should a company find itself in a state of insolvency, the ultimate recourse involves bankruptcy and liquidation as the concluding measures of restructuring. Bankruptcy allows enterprises to reorganise and restructure their financial obligations within a framework of legal protection, whereas liquidation entails the sale of assets to meet existing liabilities. These processes provide troubled companies with a systematic approach to either financial recovery or a measured exit, notwithstanding the inherent difficulties they present.¹⁰

Obstacles in Organisational Reconfiguration

While corporate restructuring offers significant strategic benefits, it simultaneously presents a range of challenges that require careful oversight.

Resistance from stakeholders: Modifications may encounter opposition from employees, investors, and customers due to perceived risks and uncertainties.

The intricacies of implementation demand meticulous planning and execution for the successful integration of novel structures, processes, or financial models.

Considerations Regarding Regulatory and Compliance Matters: Adhering to legal requirements and the principles of corporate governance is of utmost importance.

¹⁰ Prasad G. Godbole, *Mergers, Acquisitions and Corporate Restructuring* (2013).

Cultural Integration: Aligning organisational cultures is crucial to facilitate seamless transitions, especially in the context of mergers and acquisitions.

Transient Interruptions: The transition period may witness transient reductions in productivity or financial performance.

Effective communication strategies, comprehensive change management frameworks, and a meticulously organised approach are essential for organisations to navigate these challenges.

Organisations have the capacity to bolster financial resilience, refine operational efficiencies, and adapt to shifting market dynamics through the strategic implementation of corporate restructuring. Successful restructuring requires a careful balance of analytical precision, stakeholder engagement, and executional proficiency, whether it pertains to financial modifications, operational transformations, strategic consolidations, or organisational reconfigurations. Organisations have the capacity to not only traverse disruptions but also to emerge fortified, more adaptable, and strategically aligned for enduring growth by proactively confronting challenges and capitalising on opportunities.¹¹

Reasons for corporate restructuring

Corporate reorganisations represent intricate undertakings that are frequently influenced by a myriad of internal and external dynamics. Financial challenges, strategic shifts, evolving market dynamics, and regulatory alterations represent factors that can jeopardise an organization's long-term sustainability unless meticulous decision-making is employed.¹²

In numerous instances, economic challenges serve as the catalyst for restructuring initiatives. To restore financial equilibrium, organisations might opt for restructuring in response to declining revenues, increasing debt, or constrained liquidity. In order to alleviate financial strain, enhance liquidity, and restore solvency, this procedure may encompass debt restructuring or the infusion of equity. In this context, a fundamental strategy for preventing insolvency and maintaining the stability of the company's finances is restructuring.¹³

One of the primary drivers behind corporate reorganisations is the evolution of market dynamics. Organisations must perpetually evaluate their position in an ever-evolving landscape, influenced by emerging technologies, changing consumer preferences, and

¹¹ Rabi Narayan Kar & Minakshi, *Mergers, Acquisitions & Corporate Restructuring: Strategies & Practices* (3d ed. 2023).

¹² Rajesh Chakrabarti, *Grit, Guts and Gumption: Driving Change in a State-Owned Giant* (2010).

¹³ Bankruptcy and Restructuring: See 11 U.S.C. § 1129 (2023) (providing the standards for Chapter 11 bankruptcy plan confirmation, a common restructuring method).

fierce competition. Industries such as telecommunications and automotive, currently experiencing technological disruptions, frequently encounter challenges in adapting to emerging innovations. In such instances, restructuring enables enterprises to remain agile and competitive by harmonising their operational frameworks with customer preferences and prevailing market dynamics.

The strategic realignment constitutes a significant aspect of corporate restructuring. This outcome stems from a strategic choice made by the company to concentrate on sectors exhibiting greater prospects for profitability or growth. Consequently, it is a prevalent practice for enterprises to divest underperforming divisions and reinvest the capital into more promising ventures. The restructuring of organisational and operational frameworks is essential to facilitate these strategic transformations, thereby enabling the enterprise to penetrate new markets, attract additional clientele, and enhance profitability through the optimisation of operations.

Mergers and acquisitions frequently result in profound transformations within organisations. In order to realise the synergies anticipated from a merger or acquisition, the involved entities must undertake a reorganisation of their management structures, optimise their financial frameworks, and integrate or acquire complementary enterprises. A meticulously crafted restructuring plan in such scenarios can yield significant improvements in operational efficiency, cost savings, and the emergence of new avenues for market expansion.

Modifications to regulations may also require a reevaluation of organisational frameworks. Modifications to tax legislation, environmental guidelines, or sector-specific compliance requirements exemplify alterations to legal and environmental frameworks that may necessitate businesses to recalibrate their operations and corporate governance structures. In this context, reorganisation functions as a dual mechanism, acting not only as a compliance measure but also as a strategic tool aimed at maintaining competitiveness and mitigating potential regulatory penalties. The necessity to adjust to evolving financial, strategic, or regulatory conditions serves as the impetus for corporate restructuring, a multifaceted endeavour. To ensure that the restructuring initiatives foster enduring competitiveness, operational efficiency, and sustainable growth in a dynamic market, a meticulous and nuanced approach is essential for each of these elements.

Challenges of corporate restructuring

While corporate restructuring can offer significant benefits, it is a complex and nuanced endeavour fraught with challenges. The successful execution of this initiative requires not only strategic foresight but also the careful management of human, financial, and operational dynamics. Suboptimal outcomes may arise from an inability

to adeptly manoeuvre through these complexities, potentially compromising the intended goals of restructuring.

Resistance to Transformation

Opposition to transformation stands as one of the most significant challenges in organisational reconfiguration. Restructuring can evoke apprehension among employees, managers, and shareholders alike, as they grapple with the potential for job losses, alterations in responsibilities, or a diminishment of their influence within the organisation. Systemic resistance can emerge from deeply rooted corporate cultures that resist change, alongside personal fears. An effectively structured change management strategy that emphasises clear communication, engaged employee involvement, and a persuasive explanation of the long-term advantages of restructuring is essential to navigate these challenges.¹⁴

Inadequate Communication

Effective communication serves as the foundation for any restructuring endeavour. Nevertheless, the complexity of these transformations often culminates in communication failures, subsequently fostering disengagement, misinformation, and ambiguity. In the absence of sufficient information regarding the rationale, process, and expected outcomes of restructuring, employees and stakeholders may engage in speculation, potentially undermining trust and hindering effective implementation. To guarantee that all stakeholders are in agreement and to mitigate the risks linked to ambiguity, it is essential to create a systematic communication framework characterised by clarity, consistency, and regularity.

Significant Expenses Associated with Organisational Restructuring

Legal advisory services, severance packages, and operational realignments are often necessary components of restructuring, a process that can be quite costly. In specific circumstances, it may be essential to allocate resources towards the acquisition of novel technologies or infrastructure to support the redesigned corporate structure. The financial burdens may intensify immediate fiscal challenges for organisations in distress, potentially leading to constraints in liquidity. To ensure that restructuring serves as a value-enhancing endeavour rather than an extra encumbrance, it is imperative to undertake a comprehensive cost-benefit analysis alongside judicious financial planning.¹⁵

¹⁴ John C. Coffee Jr., *Entrepreneurial Litigation: Its Rise, Fall, and Future* 112 (Harv. Univ. Press 2020).

¹⁵ Government Bailouts & Corporate Restructuring: See David A. Skeel, Jr., *The New Financial Deal: Understanding the Dodd-Frank Act and Its (Unintended) Consequences* 45–49 (2010) (examining government intervention in corporate restructuring).

The complexities of cultural integration

The integration of diverse cultural frameworks emerges as a pivotal factor influencing the success of restructuring efforts, particularly in the context of mergers or acquisitions. The friction arising from differing corporate cultures, management philosophies, and employee expectations can lead to disengagement, attrition, and a decline in productivity. The divergence in cultural values can significantly hinder the achievement of synergies unless there is a deliberate initiative to harmonise organisational principles and operational methodologies. Proactive leadership, inclusive decision-making, and initiatives that foster cohesion within the newly structured entity are essential to tackle these challenges effectively.¹⁶

Interferences in Operational Processes

Business operations are consistently interrupted by restructuring, especially when it entails workforce reductions, comprehensive process changes, or shifts in strategic direction. Clients might experience variations in service quality, staff may face challenges in adapting to new responsibilities, and the intricacies of the supply chain could be momentarily unsettled. Such disruptions possess the capacity to erode financial performance and market confidence if not handled with utmost precision. To alleviate operational volatility and ensure a smooth transition, it is essential to adopt a phased strategy underpinned by thorough contingency planning.¹⁷

Challenges in Legal and Regulatory Frameworks

The process of restructuring necessitates a careful navigation through a multifaceted landscape of legal and regulatory obligations, encompassing labour laws, antitrust regulations, bankruptcy statutes, and compliance requirements specific to various industries. Disregarding regulatory compliance can lead to legal disputes, monetary fines, and potential damage to the organization's reputation. To ensure that the restructuring initiative is safeguarded against unforeseen legal ramifications, it is essential for companies to engage the expertise of proficient legal counsel, given the intricate nature of the legal challenges at hand.¹⁸

¹⁶ Restructuring in the Tech Industry: See Elizabeth Pollman, *Startup Governance*, 168 U. Pa. L. Rev. 155, 165–68 (2020) (exploring restructuring dynamics in technology startups).

¹⁷ The Rise of Decentralized Autonomous Organizations (DAOs) in Corporate Restructuring: See Aaron Wright & Primavera De Filippi, *Decentralized Autonomous Organizations*, 17 U.C. Davis Bus. L.J. 45, 57–60 (2017) (exploring how blockchain-based entities challenge traditional restructuring models).

¹⁸ Restructuring and International Human Rights Law: See John Ruggie, *Business and Human Rights: The Evolving International Agenda*, 101 Am. J. Int'l L. 819, 825–28 (2007) (discussing corporate restructuring's impact on global labor rights).

Assessment of the Effectiveness of Organisational Reconfiguration

The assessment of the effectiveness of corporate restructuring presents inherent challenges, primarily because its benefits often become apparent only after a considerable duration. Although financial metrics like profitability and cost efficiencies serve as important indicators, qualitative factors such as stakeholder confidence, employee morale, and brand perception hold equal significance in shaping long-term success. Engaging in regular evaluations and setting clear performance standards can provide significant understanding of the restructuring's effects, facilitating the timely adjustment of strategies as necessary.¹⁹

Conclusion

Companies continue to use corporate restructuring as a crucial tool for strategy as they try to navigate through complex market environments, budget constraints, and changing business demands. The process is inherently complex, but it offers significant potential for long-term sustainability, improved efficiency, and growth. Employee resistance, poor communication, large financial investments, operational disruptions, and complex legal and regulatory considerations are just a few of the many obstacles that organisations encounter when they undergo restructuring. These challenges have the potential to undermine the anticipated advantages, which could put the initiative's success at risk if they are not handled adeptly.²⁰

To achieve successful results in restructuring efforts, a well-planned and organised strategy is essential. Companies need to lay out specific goals, communicate openly and proactively with employees, investors, and customers, and build thorough frameworks to achieve them. By proactively identifying and addressing concerns early on, we can encourage trust, alleviate resistance, and promote seamless transitions. Additionally, the ability to adapt is critical. Organisations need to be nimble so that they can keep up with changing internal and external conditions and make sure their restructuring strategies are in line with their overall business goals. A dedication to creating lasting value, awareness of changing challenges, and continuous evaluation are all necessary for this.²¹

Reorganising a company can have a profound impact if done with vision, good

¹⁹ The Role of Hedge Funds in Restructuring Battles: See Edward B. Rock, *Hedge Funds in Corporate Governance and Corporate Control*, 161 U. Pa. L. Rev. 1021, 1042–45 (2013) (analyzing hedge fund activism in restructuring decisions).

²⁰ Gender and Diversity Issues in Corporate Restructuring: See Lisa M. Fairfax, *The Bottom Line on Board Diversity: A Cost-Benefit Analysis of the Business Rationales for Diversity on Corporate Boards*, 102 Nw. U. L. Rev. 162, 170–73 (2008) (examining board diversity shifts post-restructuring).

²¹ Restructuring and Digital Transformation: See Georgios Petropoulos, *Digital Transformation and Corporate Governance: A Legal and Economic Perspective*, 14 J. Corp. Fin. L. 213, 225–28 (2021) (examining restructuring strategies in response to digital disruption).

leadership, and a balance between short-term stability and long-term growth. It can strengthen the foundation for long-term success, make operations more efficient, improve positioning in the market, and make the company more financially resilient. While the path is certainly not simple, it does show that a well-planned reorganisation can improve the present setup and guarantee the company's success even in the face of unknowns down the road.²²

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- Bankruptcy and Restructuring: See 11 U.S.C. § 1129 (2023) (providing the standards for Chapter 11 bankruptcy plan confirmation, a common restructuring method).
- Hostile Takeovers and Defenses: See *Unocal Corp. v. Mesa Petroleum Co.*, 493 A.2d 946, 955 (Del. 1985) (establishing the standard for defensive measures against hostile takeovers during restructuring).
- Regulatory Oversight: See U.S. Sec. & Exch. Comm'n, Staff Legal Bulletin No. 14E (Oct. 27, 2009) (discussing shareholder proposals related to mergers and acquisitions as part of restructuring).
- Tax Implications: See I.R.C. § 368 (2023) (governing tax-free corporate reorganizations under federal tax law).

²² Role of Credit Rating Agencies in Restructuring: See Frank Partnoy, *How and Why Credit Rating Agencies Are Not Like Other Gatekeepers*, 92 Wash. U. L. Rev. 89, 98–102 (2015) (assessing the influence of credit ratings in corporate restructuring).

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Psychological Resilience and Sports Performance: A Correlational Study

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Vipin Sehrawat

Ph.D Scholar, Dept. of Physical Education, Chaudhary Ranbir Singh University, Jind, Haryana

Bindu Kumari

Assistant Professor, Dept. of Psychology, Hindu Girls College, Sonipat, Haryana

Kuldeep Nara

Professor, Dept. of Physical Education, Chaudhary Ranbir Singh University, Jind, Haryana

Abstract

Background of the Study: Resilience is a psychological trait that enables a healthy response to adversity. Sports practice inherently includes adverse and stressful situations like struggles, defeat, risk of injury, challenges, and evaluation that sports persons have to cope with. This makes psychological resilience a relevant variable in sports. The current study looks at the relationship between resilience and athletic performance in the context of sports.

Methods: A total of 56 sportspersons ranging from 15 to 20 years from different individual and team sports categories were recruited for the study using a snowball sampling technique. Connor-Davidson Resilience Scale (CD-RISC) was used to assess resilience, while their sports performance was measured using the Cross Sport Athletic Rating Scale (CSAR).

Results: The study's findings suggest a strong positive correlation between resilience and athletic performance, with a correlation coefficient of ($r = 0.73$) and a statistically significant p-value ($p < 0.001$). This indicates that athletes with higher levels of psychological resilience tend to perform better in their respective sports disciplines. In other words, the more resilient an athlete is, the better their performance will likely be.

Conclusion: The present study concluded that resilience is an important factor contributing to sports performance and implies that carrying out research in resilience training direction can enhance sports performance.

Keywords: Stressors, Adversity, Coping, Resilience and Sports Performance

Corresponding author:

Vipin Sehrawat, Ph.D Scholar, Dept. of Physical Education, Chaudhary Ranbir Singh University, Jind, Haryana

Introduction

Resilience is a psychological trait that enables positive adaptation during difficult times. It is conceived of both factors i.e. a quality and a process. In the context of sports, the most generally accepted definition of resilience is “*the function of mental processes and behaviour in boosting personal assets and shielding an individual from the negative effects of stressors*” The interaction between people and their environment gives resilience in its nature as a process. Sports practice inherently includes adverse and stressful situations. It includes efforts, rivalry, challenges, sacrifice, struggles, defeats, evaluation, and risk of injury (Rohleder et al., 2007). These demands in the sports context lead to stress, which athletes must cope with and bounce back to normal to succeed, making psychological resilience a crucial characteristic in sports (Blanco-Garcia et al., 2021). Resilience has emerged as a significant and widely studied variable in recent years. Resilience is also found to be positively associated with Mental Toughness and negatively associated with stress (Cowden et al., 2016; Hosseini and Besharat, 2010). Psychological strategies like relaxation techniques, talking with self, and emotional control are positively associated with Mental Toughness which in turn is associated with resilience (Crust and Azadi, 2009). A positive and significant correlation between resilience and mental health has been reported by Chow and Choi (2019) and their study implied that strengthening resilience is good for improving the mental health of freshmen in colleges. Resilience also has a weak negative correlation with work-family conflict and a weak positive association with work-family enrichment (Mazerolle, Eason, and Goodman, 2018). It has been thoroughly studied in the clinical and healthcare fields where people are required to show resilience to sustain everyday functioning while athletes take risks without fear. Due to this context specificity of the construct resilience, research in a particular context is needed (Fletcher & Sarkar, 2012). Theoretical models like The Sporting Resilience Model (Gupta and McCarthy, 2022) have been established to explain the relationship between resilience and peak performance in sports.

Psychological resilience has been studied from two perspectives in sports. Some studies suggest that sports and physical activity result in the development of resilience and are associated with a higher level of resilience and vice versa. Interpersonal relationships and encouraging coach behaviours to overcome challenges and failures lead to the appropriate development of resilience and the sports environment can be perceived to self-esteem, life skills, and self-efficacy as well as developing resilience (White and Bennie, 2015). Trait resilience, moderated by age, gender, and adversity, has a negative association with psychopathology and is positively correlated with psychological capital (Hu, Zhang and Wang, 2015). This trait can be cultivated and enhanced through training and practice, positively affecting an athlete's overall fitness and mental health. Resilience is also found to be positively associated with optimism

among athletes (Sehrawat, Kumari & Nara, 2024). Athletes who exhibit resilience can better manage stress, remain focused, and maintain motivation despite setbacks. (Wilson et al., 2019).

Another study explored the relationship between psychological toughness and athletic performance in competitive sports. Athletes having high resilient qualities score higher in task-oriented coping and use potentially adaptive strategies to cope and use lower extent disengagement- and distraction-oriented coping (Secades et al., 2016). There is a broad consensus among researchers about the positive correlation between resilience and performance in sports among various kinds of individual and team sports (Galli & Vealey 2008; Fletcher & Sarkar, 2012; and Yang et al., 2019). The findings of the research conducted by (Kegelaers et al., 2019, 2021) reported that resilience training provided by coaches can improve the performance of athletes. The study showed that athletes who participated in resilience training had better mental toughness and were able to better handle stress and pressure. Westmattelmann et al., (2021) reported that resilience can be a predictor of sports performance. Fransen et al., (2020) discovered that athletes with higher resilience levels tended to have better mental health and well-being which in turn had a positive impact on their sports performance. Resilient individuals help to use positive emotions during unfavourable conditions and increase the probability of success (Hosseini & Besharat, 2010).

The anticipation of a sporting event can increase levels of cortisol a week before the event (Filaire et al., 2009). Mental health is a determinant of performance in sports (Kumar and Devi, 2023). Sports persons who possess resilience are better equipped to handle stress, overcome obstacles, and maintain high levels of performance. An increase in psychological collectivism and cohesion can improve coping abilities in athletes and it may allow them to perform better (Gu and Xue, 2022). Sports persons have high self-efficacy and body image, evaluate themselves as worthy and productive and feel good about their performance in sports (Nara et al., 2020). Sports performance is usually affected by stressors and the concept of resilience in the positive psychology domain helps encounter stress. Managing stress is a prerequisite for excelling in sports and the context of sports is full of various stressors. It is critical to positively adapt in the face of major pressures, so the construct of psychological resilience must be systematically examined in sports persons. As the literature review indicates that resilience studies should be context-specific, this study aims to explore the relationship between resilience and performance in sports among young athletes in India. Conducting a correlational study between psychological resilience and sports performance is crucial for understanding how mental fortitude influences athletic success. Psychological resilience, the ability to adapt and recover from setbacks, may significantly impact an athlete's performance, affecting their capacity to handle stress, maintain focus, and recover from failures. By investigating

this relationship, it can be determined whether higher resilience correlates with better sports outcomes, providing valuable insights for optimizing athlete training and performance strategies. If a significant correlation is found, it could lead to the development of targeted resilience training programs, enhancing both individual athlete performance and overall team dynamics.

Additionally, the findings of the present research can guide future research directions, such as exploring causal relationships or designing interventions to improve resilience. Overall, this research is essential for integrating psychological aspects into athletic development.

Purpose

The purpose of the present study is to assess the relationship between Resilience and Sports Performance

Hypothesis

There will be no significant relationship between Resilience and Sports Performance.

Design

A correlational design has been adopted to study the relationship between resilience and sports performance among young athletes. A correlational research design seeks to determine the degree and direction of the relationship between variables. This study does not establish causality but identifies associations.

Methodology

Participants

A descriptive and cross-sectional investigation was conducted. Participants in the study ranged in age from 15 to 20 years old athletes from Rohtak and Sonapat regions of Haryana state, with accomplishments ranging from district to national / inter-university level. The snowball sampling technique was employed. Out of 60 participants, a total of 56 participants (16 females, 40 males) qualified for analysis based on the complete information provided. Inclusion criteria included (1) the sportsperson must be Indian (2) Oral consent and willingness to take part in a study (3) the coach must be available and willing to rate their performance on cross sports athletic rating scale.

Measurement of Resilience

The CD-RISC was used to assess resilience among participants. The scale has 25 items rated on a five-point scale from zero to four: a) not true at all (0), b) rarely true (1), c) occasionally true (2), d) frequently true (3), and e) nearly all the time (4). Scores range from 0 to 100, with higher scores reflecting greater psychological resilience.

Measurement of Sports Performance

The CSAR, a 37-item scale rated on a five-point scale, was developed by Pederson & Manning in 2003 for coaches to compare the traits of successful athletes in sports where 1 means strongly disagree and 5 means strongly agree. Higher ratings signify superior athletic performance. The score ranges from 37 to 185. It covers five dimensions:

1. self-motivation, 2. mental abilities, 3. emotional capacity, 4. athletic ability, and 5. character.

Procedure

The study's purpose was explained to the participants, who then completed the CD-RISC questionnaire according to the provided instructions. Coaches were approached to assess sports performance, and data was collected using the Cross Sports Athletic Rating Scale. Each participant was individually thanked for their cooperation.

Statistical Methods

The data was described using the arithmetic mean (M) and standard deviation (SD). The Kolmogorov-Smirnov test verified the normality of variable distributions. Bivariate correlation analysis assessed the relationship between psychological resilience and athletic performance. IBM SPSS 20.0 statistics software was used for all mathematical computations, with the significance level set at $p < 0.05$.

Results

Table 1

Mean and SD of Resilience and Sports Performance(N=56)

Variables	N	M	S.D
Resilience	56	79.95	12.42
Sports Performance	56	148.46	18.66

Table 1 presents the mean and standard deviations for resilience and sports performance among young athletes. The average resilience score is 79.95 (SD =12.42) reflecting a higher level of resilience among participants. For sports performance, the mean score is 148.46 (SD= 18.66) indicating above average level of sports performance.

Table 2***Correlation matrix for Athletes in Resilience and Sports Performance (N=56)***

Variables	Resilience	Sports Performance
Resilience	1	.733**
Sports Performance	.733**	1

** significant at 0.01 level.

Table 2 displays the correlation between resilience and sports performance for young athletes. Significant positive correlation have been found between resilience and sports performance ($r = .733$, $p < .01$), implying that higher resilience is associated with better sports performance, and vice versa.

Discussion

The results show that psychological resilience has a positive significant relationship with sports performance which leads to the rejection of the formulated hypothesis that there will be no relationship between resilience and sports performance. These results align with previous research highlighting the critical role of psychological factors, particularly resilience, in athletic success. The results are supported by the studies conducted by Fletcher (2018), which reported that athletes with a higher resilience were more likely to exhibit better performance outcomes. The study is also supported by Secades et al., (2016) findings that revealed that athletes having higher levels of resilience have lower levels of sports performance anxiety hence improved sports outcomes. This study further confirms that athletes demonstrate a high level of resilience, which correlates positively with sports performance.

Resilience, often defined as the ability to adapt and recover from adversity, appears to be a crucial determinant of performance outcomes in competitive sports. Given the high-pressure environment of athletics, resilient athletes may be better equipped to handle setbacks, maintain focus, and sustain motivation, ultimately leading to enhanced performance (Gupta & Reddy 2023). The strong correlation observed in this study reinforces the notion that psychological strength is as important as physical skills in sports.

Conclusion

The results indicated a strong positive association between resilience and performance in sports among athletes, highlighting the critical role of psychological factors in the ability of a sportsperson to overcome adversity and coping stressors. Building resilience can lead to performance recovery. By incorporating resilience-building

strategies into training programs and talent identification programs, sports professionals can help athletes achieve their maximum potential.

Suggestions

Further research considering age, gender, and types of sports in association with resilience would provide a more comprehensive understanding of factors impacting psychological resilience.

Conflict of Interest: No conflict of interest was declared among authors.

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Correspondence

Professor Anjali Malik (Editor-in-Chief)
Department of Psychology, MDU, Rohtak

Journal Secretariat

Swaraj Sadan
Maharshi Dayanand University, Rohtak-124001
Ph. : 01262-393573-74 /
Email:mdurj@mdurohtak.ac.in
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