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CONTENTS

EDITORIAL

In the realm of academia, effective management is the cornerstone of success. As the landscape of education evolves, so too do the challenges and opportunities faced by academic institutions. In this edition, we delve into the complexities of academic management, exploring strategies to navigate hurdles while fostering innovation and excellence.

We are proud to publish the Vol. 22 No: 01, edition of SYNERGY- I.T.S Journal of I.T & Management. The mission of SYNERGY- I.T.S Journal of I.T & Management is to publish empirical research that tests, extends, or builds management theory and contributes to management practice. All empirical methods including, but not limited to, qualitative, quantitative, field, laboratory, meta-analytic, and mixed methods are welcome. Additionally, journals facilitate scholarly communication, peer review, and the exchange of ideas, thereby fostering intellectual discourse and promoting academic excellence.

One of the foremost challenges confronting academic management is the ever-changing technological landscape. The digital revolution has transformed the way we teach, learn, and conduct research. Embracing technological advancements presents both opportunities and challenges. Institutions must adapt to new platforms, tools, and methodologies to stay relevant in a digitally-driven world. Moreover, ensuring equitable access to technology remains a pressing concern, particularly in underserved communities.

As we embark on this journey of discovery and exploration, we invite you, our readers, to join us in the pursuit of knowledge and understanding. Together, let us navigate the complexities of modern management with curiosity, humility, and a commitment to excellence.

Editor—Synergy

A Fusion of Artificial Intelligence and Business Environment in Indian Context: Challenges, Roles & Opportunities

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Abstract

The business environment is highly volatile and has affected Indian industries on a large scale. India has come a long way toward becoming a force to be reckoned with in the international economy. India is being projected as a manufacturing hub through the "Make in India"' campaign.India emerges as one of the greatest marketplaces for digital consumers, with a population of 1.38 billion and more than 500 million internet users. In February 2018, NITI Ayog led a nationwide initiative on "National Strategy for AI," which emphasizes India's AI strategy. It offers more than 30 policy proposals, including accelerating the implementation of artificial intelligence throughout the value chain, promoting ethics, confidentiality, and security in AI, and promoting investments in scientific research.

Countries like the USA, China, Singapore and Canada have announced their national AI strategy documents. Investment in AI start-ups in India has grown to USD 73 million in 2017 from USD 44 million in 2016. Among the G-20 countries, India had the third-highest number of AI start-ups in 2016. The government identified various areas where AI could be effectively used, such as health care, agriculture and education. This paper attempts to examine the changing scenario of the business environment, and it also studies the opportunities and challenges of the digital economy considering AI in India.

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Keywords: Business Environment, Artificial Intelligence, Challenges and Opportunities, Effect on employment

Introduction

The business environment is made up of all the internal and external elements that have an impact on an organisation. It aids in the identification of strategic business prospects, the planning of activities, and the improvement of the profitability and expansion of the company. (Ghosh, 2018).Artificial intelligence (AI), a branch of computer science, places a strong focus on creating intelligent robots that behave and react much like people. In 1950, John McCarthy was the first person to use the term "artificial intelligence." According to his theory, every component of learning and every other quality of intelligence could be so thoroughly described that a computer could be programmed to duplicate them. It will be investigated how to make robots comprehend language, create abstractions and concepts, address issues now handled by people, and grow. The "#AIforall" working paper exhorts India to leverage its assets by making investments in the Indian economy's "gold mine," or the areas where AI will have the most positive social impact. These industries have been broken down into five categories: smart mobility and transportation, smart infrastructure and cities, smart agriculture, and smart healthcare. The study suggests that NITI Aayog uses a three-pronged approach to achieve these goals. First, it needs to create AI prototype programmes to prove the notion. Second, it has to develop a comprehensive national policy to improve India's ecosystem for AI. Third, in order to carry out these ambitions, it should collaborate with top AI research institutions and organisations. The NITI Aayog has designated this aim of deploying transformative technologies for social and inclusive growth as #AI for all, as suggested by the title of its discussion paper.

The adoption of artificial intelligence is still subject to debate. Elon Musk, for instance, described it as the "greatest existential threat" and likened it to "summoning the demon." Experts like Stephen Hawking and a vast percentage of scientists releasing ground-breaking discoveries agree with Elon Musk that AI may be extremely destructive. They are concerned that we are avidly pursuing the deployment of robust AI systems and that we might do so in a way that makes us vulnerable to making dangerous errors. Only 386 of the 22,000 AI researchers with PhDs in the globe are based in India, according to the Global AI Talent Report 2018. Additionally, less than 50 researchers are actively engaged in significant AI research in India, with the majority of their efforts concentrated in institutions like the IITs, IIITs, and IISc.

Thus, it is important for India to formulate well drafted policies that consider application in infrastructure development, healthcare, education and agriculture. Public as well as the private sector need to work on drafting policies that can help in the creation and application of AI.

Artificial Intelligence Applications

The application of AI is very wide in today's scenario. There are various areas where the application of AI will prove to be a boon for development and inclusive growth of India. The sectors discussed below include: AI has applications in Healthcare, Marketing, Banking, Agriculture, Transport and Education.

Healthcare

Artificial intelligence in healthcare largely relates to accessing enormous data collections of potentially life-saving knowledge by medical professionals and facilities. This includes information on treatments, their results, survival rates, and the pace of care derived from data on millions of people, many places, and countless, occasionally linked health complications. Due to the necessity for automation in a wide range of tasks, India's healthcare industry utilizes AI extensively.

Start-ups like Advancells, formed in 2005, are focusing on regenerative medicine, a field of tissue engineering and molecular biology-based translational research that focuses on replacing and regenerating human cells, tissues, and organs in order to produce or restore normal function. It provides patients throughout the world with technology that allows for safe and efficient treatment alternatives that adhere to the highest medical standards.

The nation's first online doctor consultation platform, Lybrate, launched in 2014. In today's fast-paced, demanding environment, we hardly ever have time to visit a doctor in person for every little health concern we encounter. Because of our excessive job commitments, we frequently end up disregarding symptoms that, to us, appear small but ultimately turn out to be dangerous. Patients can connect to doctors and conduct online consultations through the Lybrate website. Online appointments and lab tests are also accessible to patients.

Beat-O now serves roughly 50,000 patients across 1,500 cities since its launch in 2015. The software works well and includes a glucometer that can be connected to a smart phone to get readings. Following that, the reading is saved in the app for later reference and emergency use.

Since 2016, the healthcare sector in India has expanded at a compound annual growth rate of roughly 22%. It is expected to reach USD 372 billion in 2022 if it continues at its current rate.

Marketing

Artificial intelligence has changed the way traditional marketing is done. AI-based chat bots are a key component of modern marketing. A chat bot is a type of conversational interface that enables communication with software in a human-understandable natural language.

A well-known fashion retailer called H&M utilises chat bots to ask clients questions about their own fashion preferences. When the chat bot has gathered sufficient data from the user, it generates suggestions that are in line with the user's replies. By using voice search technology, Domino's has made it possible for consumers to make orders through Alexa by simply speaking to the device. Sales for Domino's have grown because of this innovation.

Banking

According to a recent report, financial institutions will save $1 trillion in project costs because of artificial intelligence. The Indian banking industry is moving quickly to integrate AI. According to a PwC Trends Report (India) 2017, $5.1 billion was invested globally last year in AI applications, up from $4.0 billion in 2015. The study states that "AI and ML applications give the prospect for exponentially more personalised and rapid user experiences, greatly improved insights and automation of back-end processes."

With 420 million customers, SBI is India's largest public-sector bank. It is beginning of AI journey from the viewpoint of both its employees and its customers. SBI organised a nationwide hackathon in 2018 called "Code for Bank" with a focus on technologies like AI, machine learning, BOTS, digital payments, the IoT, and robotic process automation to encourage developers, start-ups, and students to come up with fresh concepts and solutions for the banking sector. The Bengaluru-based Senseforth AI Research developed the AI-powered chat bot Eva for HDFC Bank. Since its launch in March 2017, the Electronic Virtual Assistant, also known as Eva, has handled more than 2.7 million client inquiries, interacted with more than 530,000 distinct clients, and participated in 1.2 million dialogues.

Any irregularity may be used to increase the precision of credit card fraud and anti-money laundering detection. Back-office processing times may be significantly reduced by utilising OCR

to gather document data and then machine learning or artificial intelligence (AI) to extract insights from the text data. Back-office processing times may be significantly reduced by utilising OCR to gather document data and then machine learning or artificial intelligence (AI) to extract insights from the text data. At ATMs, fraud and crime may be detected and prevented using real-time camera pictures and cutting-edge AI techniques like deep learning. Indian banks' use of AI is transforming the way that banking operates there.

Agriculture

AI in agriculture is providing major benefits to farmers, which can drive an agricultural revolution. In 2018, the market for AI in agriculture was estimated at USD 600 million, and by2025, it is anticipated to reach USD 2.6 billion. Agriculture is fast adopting artificial intelligence (AI) and machine learning (ML), both in terms of agricultural products and field farming techniques.

Crop yields are optimised using AI driven by Intel. An automatic lens is wrapped around a tomato seedling's vibrant flower. An artificial intelligence program utilising images from the plant calculates the precise time it will take for the bloom to mature into a ripe tomato that is prepared for picking, packing and displaying in the produce area of a supermarket.

Intello Labs, for example, uses image-recognition software to monitor crops and predict harvests on Indian farms. Aibono offers solutions to stabilize agricultural production using agri data science and AI. Drone technology from Trithi Robotics enables farmers to precisely analyse their soil and monitor crops in real time. An Indian startup called SatSure analyses agricultural photos and forecasts the economic worth of their future crop using machine learning (ML)techniques.

By using sensors, cameras, and infrared rays to assess the soil's nutritional properties, AI may be utilised to monitor the health of the soil (Sennaar, 2019; Baruah, 2018). This makes it easier to understand how various soils respond to different seeds, how weather changes would affect the soil, and the likelihood that diseases and pests will spread (Irimia, 2016).

In terms of agricultural sowing, predictive analytics that determine when and how to seed are mostly powered by AI. It assists in estimating the best times to sow, apply fertiliser, harvest, bale, till and perform other activities based on climatic data, historical circumstances, input and output market conditions, personal information, and other factors. Furthermore, crops may be seeded with the help of AI-assisted machinery at the proper depths and intervals. The quantities needed

for any predictive modeling are provided by data from e-NAM, the Agricultural Census (which contains information on over 138 million operating holdings), AGMARKET and more than 110 million soil health tests.

Transport

In order to decrease the number of accidents on highways and boost production, businesses like Uber and Tesla have created self-driving trucks. By utilising AI to forecast the routes taken by bikes and walkers, traffic accidents and injuries will be reduced, allowing for a wider range of transportation options and a general decrease in carbon impact.

Real-time crime monitoring enhances citizen safety while using public transportation in urban settings. Additionally, by patrolling and ensuring the safety of its population, this will allow the police to work more efficiently.

Transport will be one of India's most capital-intensive industries by 2030, predicts a McKinsey analysis from 2010. The same research states that more than 7,400 kilometres of metro and subway lines must be built.

India's economy is expanding, but because of its poor infrastructure, we are still having issues. Modern AI and algorithms can be used to optimise the transportation system so that it uses less fuel and is on the road less often. By 2030, it is expected that there will be a $10.30 billion market for AI in the transportation sector. Another important problem is the talent gap. As the industry becomes increasingly data-driven and digital, the labour requirements will alter. The demand forAI specialists who are also knowledgeable in transportation-related technology will increase.

Education

According to the 2011 Indian Census, 19.1% of all people in India are between the ages of 15 and 24. By 2020, there will be 34.33% more young people in India than there are now. The education system needs to be strengthened since it may change a nation by increasing human capital and reducing productivity.

AI has the potential to revolutionize the sector by improving education and developing tools to steer and aid decision-making across stakeholders and administrative levels. Both students and instructors may benefit from the digitisation of the educational platform thanks to AI. Around the

world, a variety of tutoring services and learning programs with skill-based curricula are being created. Many courses are available through platforms like Swayam and NPTEL, which may help students gain a broad understanding of the topic.

The Central Board of Secondary Education (CBSE) in India has chosen to include artificial intelligence in their curriculum for pupils in an effort to change their educational system to prepare students for the rapidly evolving and extremely demanding technology of today.

After carefully examining the content at numerous checkpoints, AI is capable of directing students to free learning resources. By filling in any explanation gaps that may occur during acourse, this form of approach ensures that all students are acquiring the same conceptual foundation.

To tackle this difficult problem, Microsoft and the Andhra Pradesh government collaborated. In order to uncover trends based on certain factors, such as gender, socioeconomic demographics, academic performance, school infrastructure, and teacher skills, an application powered by Azure Machine Learning evaluates the data pertinent to all pupils. These data insights enable the district education authorities to act and support students who are most likely to drop out. For these youngsters and their parents, various activities and counseling sessions might be held.

Opportunities and Challenges

India has a number of potential ways to use AI to create the necessary automation. With 1.3 billion people, the nation already has a labour shortage due to its large and growing labour force. There were 63,000 unfilled positions on its railroads in February 2018, and 19 million people applied. The youthful workforce should be educated by being exposed to the tech-enabled workplace of the future with AI interfaces, machine learning, and increased automation since half of the population of the country is below the age of 25.

Acquisio and other AI-enabled systems may help marketing operations in a wide range of channels, including Google Ad-Words, Facebook, and Bing. According to a December 2017 Accenture estimate, AI may boost India's GDP by $957 billion, or 15% of the current gross value added, by 2035. The three main methods for unlocking economic value are productivity ($277 billion), intelligent automation ($83 billion), and augmentation given through human and machine collaboration ($597 billion).

The variety of languages spoken in India offers a great opportunity for developing AI tools that synchronize communication across many digital platforms.

Every opportunity is accompanied by a number of difficulties. The effect of AI on jobs is India's largest problem. Many people worry about losing their jobs as a result of AI, but it's crucial to realise that, in order to fill the gap created by this technology, individuals must automate themselves.

In order to create local AI-using businesses, the government needs to finance the education of the best and brightest students in AI. Prodigies in math and engineering should be identified at a young age, trained hard and sent to prestigious international universities to study. A Team Lease Services examination of secondary data forecasts that 52–69% of repetitive and predictive tasks in sectors including IT, financial services, manufacturing, transportation, packaging, and shipping would be vulnerable to automation in the coming years.

A data-validation clerk, for example, will assume the place of a data-entry clerk after that position is automated. A cashier would be replaced by a query handler, a financial analyst by a financial adviser, a telemarketer by a marketing algorithm builder or a personal adviser, a customer service agent by a customer interaction executive, and a retail salesperson by a retail adviser, style adviser, or shopping assistant.

Way Forward

A proper structure of regulations and procedures that can improve India's job market is required with the introduction of AI. According to NASSCOM, a remarkable 46% of the Indian labour force will be employed in professions that either don't exist yet or have changed significantly according to the skill needs by 2022. Some predictions state that by 2018, demand for AI and machine learning specialists in India will rise by 60%. By 2020, India will have a 2,00,000 person shortage of data analytics professionals, according to an independent study.

The millennial generation and India's growing middle class account for a sizeable percentage of the market for technology-enabled items in that nation. The demand for these items and consequently, the labour that can make them, will grow along with these demographics' size. Increased globalisation was a significant factor in the growth of the services sector.

Online and self-learning platforms like Coursera and edX, which connect students to the top colleges and organisations worldwide, might be extremely important in this situation. The growing middle class in India and the millennial generation account for a sizable percentage of the market for technology-enabled items there.

If initiatives to reskill workers or allow employees to engage in reskilling program have a significant opportunity cost, private organizations may be less reluctant to let their employees participate in the process on a broad scale. Therefore, it is advised that co-funding options between the government and businesses be investigated, with an emphasis on the IT industry.

AI has been slowly adopted in India and still has a small market. Only 22% of Indian companies, according to estimates, use AI in any business operation. Compared to the nearly USD 28 billion raised by Chinese start-ups in 2017, Indian start-ups were only able to raise USD87 million.

With the rising usage of technology, there is a desire for new jobs that quicken the pace of an

expanding economy. The funding of AI should be more widespread in industries like healthcare, transportation and education, but more crucially, government actions can accelerate overall growth. To promote the engagement of digital giants, research collaboration should be increased and qualified start-ups should receive government funding.

Conclusion

India can gain from AI in the upcoming years due to its competitive advantage. The biggest issues are found in sectors like healthcare, education, and transportation, where using AI can outperform costly and ineffective traditional methods. In India, there is a shortage of 600,000 doctors (1 doctor to 1,000 patients is the recommended ratio by the WHO) and two million nurses (the WHO advises a doctor to patient ratio of 1:1,000, however the ratio is 1:483.). These figures themselves highlight the need to switch to new approaches for employing AI to diagnose the issues.

According to the NITI Ayog's "National Strategy for AI," in order to perform remote condition monitoring, the Ministry of Railways, Government of India, has chosen to use AI. Non-intrusive

sensors will be employed to monitor signals, track circuits, axle counters and their interlocking subsystems, power supply systems, including the voltage and current levels, relays and timers. The government must therefore develop policies that genuinely go in this direction. It is necessary to expand the infrastructure development areas that can support the 2018 National Strategy for Artificial Intelligence #AIFORALL.

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Role of Information Technology in Fine Arts & Design

Gurjeet Singh Pandher

Abstract

The purpose of this study is to explore the role of data technology within the event of visual culture art education (VCAE). Fields of art is still new and strongly influenced by the development in information technology is visual culture art education (VCAE). Utilization of information Technology as a learning media for visual culture art education is through the use of the net in e-learning and also the use of computers as interactive media. The utilization of this media can stimulate the thoughts, feelings, interests and concerns of scholars therefore the tutorial process can occur. Learning activities are simpler because the utilization of learning media enables the overcoming of obstacles within the teacher-student communication process like physiological, psychological, cultural, and environmental barriers. Science, art and technology are connected since the 60's, when scientists, artists, and inventors began to cooperate and use electronic instruments to create art.

An honest introduction to the merger of IT with art leads genetic art, algorithmic art, applications of complex systems and computing. The intersection is drawing attention of individuals from diverse background and it's growing in size and scope. In an exceedingly multidisciplinary collaboration, the success depends on how well the various actors within the project collaborate and understand one another.

Keywords: Art Design, Technology, Application

Introduction

Without the information technology and digital technology, the world cannot move forward. The impact of these new technologies on all aspects of life is increasing day by day. Modern

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technology features an outsized impact on recent art. Both art and technology define and still reshape the world we board.

People started tackling the thought of blending visual art and technology since the '1960s. The first attempt to assemble technology and art within the creative process takes us to 1967. Back then, a bunch of recent York artists including composer, Robert Rauschenberg, Robert Whitman, and Yvonne Rainer and more, worked with engineers and scientists from the world-renowned Bell Laboratories to make ground-breaking performances incorporating new technology.

The 1980s saw digital technologies touch standard of living, with the widespread adoption of computers for both business and personal use. Lighting tricks and tricks began to be utilized in films like 'Star Trek II: The Wrath of Khan' and 'Tron', both 1982, moreover as in television programmes. Combined with the popularity of video and computer games, computing technology began to be the way more familiar sight reception, similarly as at work.

In 1990s onwards the term 'Computer Art' is used less frequently to clarify artists and designers working with the pc today. Many artists who now work with computers incorporate this technology into their practice as only one tool amongst many that they'll use interchangeably. This may be often a part of a more general shift towards artists and designers working in an increasingly interdisciplinary manner. Many not define themselves as practitioners of a selected media.

Modern technology has an infinite impact on recent art. Modern artists are using new materials and techniques to supply their artworks. Whereas within the past painting and drawing were the foremost mediums utilized by artists in their work, now within the 21st century installations, sound, video and computers have gotten more widely used and popular. Artists today are continually experimenting with new technology in several ways, finding new ways to use old mediums and finding new mediums likewise.

The internet is used more with many contemporary artists using it to display their works with online galleries, sit down with other artists and sell their works.

The change of artworks nature along with the shift within the public interaction and also the reshaping of the museums and exhibition spaces are making more room today than ever before for some of the foremost amazing samples of art and technology mix through digital art, kinetic pieces, and works that explore the online and online existence.

Advantages of Digital Art

Versatility – it should be computer-generated, scanned and altered, or drawn employing a tablet and a mouse. Video edits are instantaneous and reversible.

Permanence – It can remain indefinitely in an exceedingly file format, so cannot be degraded by the environment.

Perfect replication – It precisely replicates the initial work. Copies and also the primary are identical. They can, as an example, function a call to action (CTA) in advertising. It enhances communication and viewer comprehension.

Expands time for the creative input – Digital tools are often quickly and simply applied, giving the artist longer to explore creative options. Artists can expose their work to a worldwide audience by simply clicking 'share' on any chosen social media platform. The standard paths to success are reshaped thanks to the net.

Technology has impacted the humanities greatly. It offers many opportunities for artists and has expanded the quantity of techniques artists are able to access. Artists can now “paint” on an iPad also as they'll on canvas with a paintbrush and paint.

Technology helps to introduce more audiences to art:

The digital world could also be a really populist force, levelling the world between rich and poor, educated and uneducated. In our case, a company with a reputation like “Historical Society” has an invisible shield that bounces people who are below median income, don't hold college degrees, those hold blue collar jobs and a racial or cultural minority, off. The ubiquity of the pc, whether through your home machine, school, or local library, implies that each one of those things that cause discomfort doesn't matter. That's an unlimited deal!

It has extended our visibility to many isolated individuals who may never have heard about our services, explored the art form, or who may have financial barriers to membership. We show to them on a daily basis what we do, rather than expect them to go looking out a printed annual report and program summary. Social media are concrete and immediate samples of our living community in action.

Technology is additionally helping arts organizations extend their impact, far beyond a one-time performance or event:

The internet and digital media provide an amazing opportunity for arts organizations to extend the impact of the humanities. A live performance are often complemented greatly by opportunities for further engagement and education, and also the flexibility to share information online maximizes our ability to supply these opportunities at a more in-scale investment ratio. We are able to reach more people with a writing or video than with a one-time lecture, as an example.

We are able to provide artwork that dates back quite 25 years to the communities we've worked with over the years. For many, these archives represent the only real media history of their community. The use of the online has deepened and expanded the access for our constituencies that are often transitional, without a land base or are historically isolated because of geography.

Technology is increasing access to the humanities by breaking geographic constraints:
Technology will greatly improve accessibility to the humanities field – from a monetary standpoint and from a logistical standpoint. Those who live outside of urban areas are visiting be able to experience performances that are somewhat limited to large urban areas. Arts organizations will should reconsider the level/type of interaction with their audience.

Technology helps organizations reach more diverse communities – even on a worldwide scale:
The greatest impact is the pliability for non-profit organizations to share educational content and stimulating art and performances worldwide. It'll also spark conversations between diverse communities and help individuals develop a greater understanding – and hopefully, a life-long appreciation for the humanities.

The internet will enable the subject to achieve beyond a vicinity audience, promote tourism, and make cultural arts created within part accessible to the state – and world.

The Growing Relationship between Art and Technology:

Art and technology have a fancy but meaningful history of working together and influencing one another. In some ways, they have evolved alongside each other to succeed in their place within the globe today; a digital age where they constantly overlap and portray new ideas. Christie's Education discusses how the innovations in technology have directly impacted the art world, and might still do so within the years to return.

Innovations in Art:

However, this doesn't just apply to their production. The way art is viewed, shared, consumed and subsequently sold is consistently transforming too. Technology has made art far more accessible. a touch like with countless other aspects of recent life, the online has allowed art to be consumed during a more direct way, opening the industry to a wider and more diverse audience. Museums showcase collections online, and artists have all the tools they need at their fingertips to push and sell their own pieces – often without the challenges that include running a physical exhibit.

It's clear that the link between art and technology has led to many exciting new pieces and techniques. Significant innovations from the past few decades include:

AI-Generated Art

Is AI the subsequent great Art Movement? Although experts try and keep us under control and suggest the revelation continues to be in its infancy, it's hard to not appreciate this extraordinary innovation within the art world. Blurring the road between human and machine, AI-generated art offers us a different reasonably unorthodox creativity. However, new findings don't come without hesitance. Some argue that art generated through engineering is certainly not art, or creative.

Blockchain

Blockchain technology has multiple purposes for the art world and has the potential to form a good more significant impact. The Fine Arts Expert Institute (FAEI) published a report in 2014

which states that over 50% of the artworks it had examined were either forged or not attributed to the correct artist. The rise of block chain can help change this and maintain the all-important authenticity within the industry.

The phrase "block chain art" isn't quite accurate. I'm happy to acknowledge the various ways block chain is employed by artists; however, to help readers understand the correct inquiries to ask, "block chain art" may refer to physical artworks that are tokenized. More likely, it should pertain to digital art, which has the capacity to be editioned on a block chain via a 'hash,' the equivalent of a digital identity (digital art can take the form of TIF files, gifs, jpegs, etc.). Artists are using block chain as a medium— notable examples are Kevin Abosch's project IAMA Coin and his collaboration with Ai Wei Wei called Priceless. Artists can use block chain to fractionalize (or divide) their work into pieces, each of which could be owned separately. I encourage your readers to look into the Final Public Key/Private Key project at the Whitney Museum for a wonderful example of how fractionalization can create new forms of ownership.

Selling art through block chain?

Blockchain technology is currently being employed to edition and sell digital art via digital art marketplaces; however, these platforms aren't yet mainstream. To access them, one must understand how to use a digital wallet and cryptocurrency. Once these selling platforms start accepting fiat currency, more people will feel comfortable trading digital art. There is a chance here to educate people on how to buy digital art, how to access a block chain, and how to consider digital scarcity. I believe this education is critical for digital art to become more main stream.

Secondly, there are opportunities to use block chain platforms to simplify the trading of physical artwork and create industry-wide title registries. To move forward with this solution, however, the industry must decide how to connect the physical works to a block chain registry, and there are a variety of companies creating solutions currently. It'a general belief that the data must be connected to the property for a solution to function as a true supply chain. We will even need to agree upon which registry to use, and this decision-making may require the formation of an art world consortium.

The real success in utilizing block chain will arise when trusted industry leaders and experts reach a consensus on the platforms to utilize. Blockchain provides the possibility for competitors to share data while maintaining institutional and personal privacy, which could dramatically simplify clients' lives. To get there, however, the first step is to agree upon an industry provider or providers with interoperable platforms.

Predicting impacts of technology and social media

To forecast the impact that technology and social media will have on the sphere as a whole in the coming years, respondents mentioned everything from practical implications to broader, soul-searching ideas about the future of creativity. The internet makes it possible for our organization to promote ourselves more effectively through online advertising, blog presences, and social media exchanges. We've been able to decrease our budgets and increase revenue by utilizing online resources effectively. It is also greatly facilitating our ability to book talent and understand what to expect: For arts programmers, access to high-quality media to review artists prior to assessing them live has been an immense breakthrough. Spotify alone has made it much easier to get a first impression of an artist—no more waiting for press kits, accessing only what they've posted on their websites, etc.

Technology is changing the behavior of subscription buying:

Last-minute ticket purchases and the trend away from traditional subscription packages will likely continue, as the internet has freed people from having to plan for event attendance far in advance. This can affect the predictability of revenue. On the positive side, social media has been a valuable tool for word-of-mouth marketing.

While it's impossible to know what the internet and digital technologies will be like in 10 years, the trend of more information communicated more quickly to a more finely targeted audience with more immediate feedback from the recipient will likely continue. We believe that this leads people to delay their decision-making about how they'll spend their leisure. For our field, this has generally meant a decline in subscriptions, a decrease in advance ticket sales, and an increase in last-minute box office sales.

Moving beyond the practical, one of the prevailing positive themes is that technology increases — and will likely continue to increase — access to the arts. In some cases, technology is solely seen as a way to enhance marketing and communication to get more “butts in seats,” but many respondents noted its power to broaden and deepen the audience experience.

Technology is making it possible to create community around a piece of art: There is a significant opportunity for the arts to create communities around performances, shows, exhibitions, and their themes and history. For example, a Broadway show like 'Next to Normal' could (and probably has) created communities to discuss and share resources on mental health.

Some organizations enthusiastically talk about the democratization of art and creation, while others express excitement about the challenge of meeting new demands and expectations: Continuing the transition from passive to participation, from hierarchical to democratic, from traditional media to online media, from single art-form to interdisciplinary.

The possibility to greatly expand and build a more diverse audience is incredibly exciting because traditionally our audience has been older and whiter than the world we live in. Increasingly, we're seeing some of our content gaining traction in surprising corners of the web — which definitely means a shifting audience. The challenge is for that audience to identify our content with the creators and the institution, and not just have it exist as more entertainment or noise on the internet. In the next few years, the role of mobile devices will only continue to shift how people curate their own experience and interact with artistic content. The challenges that digital technology presents: While digital technologies have led to the creation of ever-more dazzling tools and apps, many arts organizations worry about the future effect on audiences, the field, and their very mission. For audiences to invest the time and energy in attending a live performance, the work they see will need to be more engaging and of higher quality. Events will need to be more social and allow for greater participation and behind-the-scenes access. The event spaces will need to be more beautiful, lighter, more inviting, and more accessible.

The greatest impact of the internet on independent publishers is audience expectations.

Audiences will expect everything to be available digitally, and may require a desirable experience rather than a static one.

Addressing the challenge of meeting audience expectations on a limited budget:
The internet and digital technologies are powerful tools. The general public expects content to be free. There is a lack of awareness of the resources (funding and staff) that it takes to manage and preserve digital content. These costs will need to be passed on to users.

Others express concern that the challenge to meet audience expectations will influence artistic choices, even entire art forms: Some ideas cannot be condensed into 140 characters or less. Technologies don't negatively affect the playwright. Playwright doesn't write solely for a Twitter generation. Live performances may be diminished. Younger people don't want to show up at a specific time and place for live performance — they want to download music at their own convenience. The power of live performance is lost and the civic convening – the community building is lost.

Some arts organizations have recognized this change, and do their best to adapt. They believe digital technologies are here to stay, and that we as an art form should embrace them and learn how to work alongside them. We provide scripts to those sitting in our tweet seats, so they get the quotes right. They believe that audiences will continue to have shorter and shorter attention spans and may insist upon having the ability to use smartphones and other devices within the context of a performance. As an industry, we should stop fighting and try to find ways to incorporate that reality into our daily lives. They will need to become much less tied to live, face-to-face programming and definitely less tied to anchored seats in concert halls. Programming will need to incorporate much more personal involvement by the consumers or they will not be interested in engaging.

A number of respondents worried about audiences' decreasing attention spans, and the long-term impact on the field: As attention spans decrease, programming of longer works (e.g., Beethoven's Symphony #9) will become more problematic. As we move forward, we may need to

contemplate ways to embrace the digital, connected world to better engage live audiences or run the risk of making live music performances irrelevant.

The greatest impact may be the growth of our audiences, but the worst impact is the span of the moment of interaction. I worry that it may shorten our art forms' performance times.

Technology has blurred the lines between commercial entertainment and noncommercial art, forcing arts organizations to more directly compete with all other forms of entertainment: It has also blurred the lines between a virtual and real experience: As the realism of participatory digital entertainment (video games, etc.) and the immersion ability of non-participatory digital entertainment (3D movies, etc.) increases, it threatens the elements that make the live arts unique – the sense of immediacy, immersion, and personal interaction with the art. We've long held fast to the idea that there's nothing like a live experience, but digital entertainment is getting closer and closer to replicating that experience, and live theatre will struggle to compete with the former's convenience and affordability.

Film and cinema organizations talk about the pressure they face to preserve the “specialness” of the big screen when on-demand home viewing is already prevalent: As a cinema approaching our fifth anniversary, we have seen significant audience growth despite the fact that many of the films we play are being released “day and date” on-demand. While streaming and piracy are increasing, we've been able to deliver the message that seeing films on the big screen with an audience is a unique, important cultural experience. I can't emphasize the importance of the internet and social media in our marketing efforts enough.

As a movie exhibitor, challenge is to navigate the digital convergence for projection and exhibition, a supremely expensive change that doesn't even have a long-range viability (these systems will need to be upgraded and/or changed every 3-5 years). Finding the revenue for these digital systems is a huge challenge and threat to our ongoing activities.

Others working in film worry that the quality and quantity of films will diminish: In the field of film

production and distribution, more internet and digital access will result in far fewer movie theaters, as audiences have greater access to the medium in their homes. Already, as marketing dollars become more limited for films, production companies are shortening the movie lifespan in theaters and moving them to digital and television media sooner and sooner.

Organizations in the literary book tradition face similar challenges with ebooks. Literature and the book are being impacted by digital technologies due to the growing popularity of ebooks and the influence of giant online booksellers like Amazon. There are both positive and negative effects associated with these technologies. Nowadays books are more easily accessible to a greater number of people but it is difficult for the book industry to generate a sustainable amount of income both for individuals and for organizations. It is crucial that the general public understand the importance of supporting nonprofit literary organizations, publishers, independent bookstores, libraries, and other supporters of book culture, and in turn it is crucial for foundations and government to provide this support.

All literary magazines are in peril right now, so if magazines like ours still exist it will be due to a paradigm shift in how literature is funded as an art form in the U.S. I am loath to believe that print publications will cease to exist because they are still more beautiful, but all publishers will eventually need to create simultaneous digital and print editions, I imagine, which may make the entire enterprise more expensive.

Respondents worry that these disruptive technological and cultural forces will make it harder for some large-scale art forms to survive: I believe that the more expensive arts producers — symphony orchestras, for example — will find it harder to attract enough audience to continue in the same manner they've operated for the past decades. Smaller groups will find it easier to adapt because they're more flexible (they don't require a large stage and hall). I am very concerned about losing some of the best music ever written — symphonies — for this reason.

Others pointed to innovative experiments — such as the Metropolitan Opera's performances in movie theaters — as an example of what large institutions with funding can do: For opera, it has

made it more accessible, by providing low-cost performance broadcasts of Met performances. Overall, I think the effect is positive.

Museums have a unique perspective on technology's impact. It has greatly improved their cataloging efforts, but some worry that it will eventually reduce audience interest in the “real thing”: It will radically shift the way we catalog and share information about collections; the museum as less the all-knowing authority and more the conduit for rich institution-driven and user-driven information. It will also allow regional collections the flexibility to link to similar collections worldwide – so our local collections may be recontextualized and made meaningful in ways impossible without linked data and semantic web technologies.

Digital technology and the resulting accessibility of data and images, while fostering accessibility of collections online, have the negative impact of diluting the desire of people to visit the museum to experience works of art firsthand.

A number of organizations mentioned the demise of trusted critics and filters, which served as mediators — especially local newspapers — have cut back on staff and struggled with decreased ad revenue as part of this digital transition: Digital technologies have essentially made it impossible for book critics to support themselves in traditional ways; possibly the next 10 years will bring the shift of book criticism to the academic world, where salaries are paid for teaching, and reviewing is a secondary activity. Today there are just a handful of critics able to do this.

Chief concern for the literary arts is the increasing “validity” of self-publication among reviewers, readers, and writers. Online publishing and book sales through Amazon (for example) contribute to this problem. If there are no gatekeepers, it will become even harder to draw attention to works of genuinely high quality.

For some, the absence of critics and mainstream media previews of arts events means arts organizations are shouldering an even greater burden: The demise of daily and weekly newspapers and the increasing fragmentation of traditional radio and television media outlets

combined with the increasing consolidation of media ownership due to revised FCC regulations has marginalized arts coverage and criticism to a degree where it no longer plays a part in the larger civic conversation. Hence, it is becoming increasingly difficult to reach and engage potential audience members and arts participants, and has shifted the entire burden (and costs) to arts organizations that are ill-equipped and unprepared to both engage in their traditional function (i.e., support the creation and presentation of artwork) as well as build support structures to take the place of traditional media organizations.

Some responses addressed the future of artists themselves. There is recognition that today's artists must also be entrepreneurs: Digital technologies will level the playing field for all and traditional, professional artists will be left behind. It is the age of the amateur. For those who are savvy and ahead of the curve, there is money to be made if the content is powerful. It means the complete reversal of a contributed-based model founded on single funding sources and moves toward an earned revenue model and crowd-sourced funding. Now more than ever, artists must be entrepreneurs and not just artists. You can't survive now as an artist unless you have a strong business model.

The internet is becoming the key distribution platform for documentaries, which is what we do. The DVD will be gone in ten years. Artists will struggle to monetize their work on the web.

Access is good for educational purposes and to increase awareness of the arts especially historical material in performance of all sorts. However, issues with copyright and payment for that material, such as in apps and in streaming or downloading, are murky and hard to navigate for artists themselves on value and fairness of payments to the artist for original content.

There were also some contemplative responses about the impact of technology on culture. One respondent noticed that the ability to collaborate globally may lead to more cultural homogeneity while another worried about the long-term fate of non-digitized art: Digital technologies allow for students and artists all over the world to be inspired by one another. In some ways this is fantastic, in other ways, this breaks down the cultural differences that are so beautiful about having multiple

countries involved in an art form. Materials we have that aren't available digitally are lost from the human record.

Finally, several respondents summed up the issues facing arts organizations, connecting the challenges of meeting audience expectations with limited funding options: Attendance at live performances will favor more fervent fans and people with disposable incomes who reside in cities. Audiences will expect the digital presence of institutions to be maintained and curated.

Organizations will continue to adapt and incorporate digital technologies into their programming. This may be a good thing for art consumers and patrons by increasing accessibility and improving collaboration. At the same time, organizations will struggle with funding to keep up with technology. Funders so rarely fund some of the infrastructure necessary to create top-notch digital programming, which poses a major struggle.

Survey results reveal that on a purely practical level, the internet, digital technologies, and social media are powerful tools, giving arts organizations new ways to market events and engage with audiences. But, technology has also disrupted much of the traditional art world; it has changed audience expectations, put more pressure on arts organizations to actively participate in social media, and even undercut some arts groups' missions and revenue streams.

Beyond the practical, the internet and social media provide these arts organizations with broad cultural opportunities. Comments in this survey reveal an array of innovative ways in which arts organizations are using technology to introduce new audiences to their work, expose more of their collections, provide deeper context around plays and exhibits, and break down cultural and geographic barriers that, to this point, have made it difficult for some members of the general public to participate. Their responses suggest that most of these arts organizations, with enough funding and foresight, are willing to use the new digital tools to sustain and amplify their mission-driven work.

Conclusion

Information technology (IT) as a medium for the work of artists and designers points out that there are many ways for engineering (CS) to support new tools and applications for the arts and design

disciplines, appealing to cutting-edge and more mainstream practitioners alike. These tools and applications offer the potential for beneficial developments in information technology and artistic practices (ITCP). But there are further, more profound implications of the intersection between IT and the arts and design, which views art and design practices as forms of CS research and development. This perspective on CS is more subtle, challenging, and fundamental than the tools orientation. It involves a non-traditional and perhaps unfamiliar type of art and design practice. It also involves rethinking CS in ways that many computer scientists would find non-traditional.

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Planning and Challenges in Outbound Defence Supplies

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Abstract

In order to guarantee the prompt and effective delivery of vital resources to deployed forces, outbound defence supplies play a critical role in supporting military operations outside of national borders. Careful planning, coordination, and management are therefore required. This study looks at the various difficulties and nuances that come with outbound defence logistics, including supply chain management, security concerns, planning for logistics, legal compliance, and technical advancements. This study offers an in-depth analysis of industry data, case studies, and academic literature to bring light on emerging trends, best practises, and future directions in the outbound defence supply market. In the complex, globalised, and asymmetric security environment of today, national defence must contend with a number of issues that call for a more comprehensively structured foreign and security strategy, or rather, a new management paradigm.

Key words: Outbound, defence, supplies, logistics, SCM etc

Introduction

Defence supplies that are sent abroad are essential to military operations that take place outside of national borders because they provide the vital connection between tactical execution in challenging and hostile conditions and strategic goals. Maintaining the efficiency and resilience of deployed personnel depends critically on the timely and efficient supply of vital resources, such as food, medical supplies, ammunition, and equipment. Nonetheless, there are significant obstacles to overcome in the planning, coordinating, and managing of outbound defence

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logistics, which call for creative thinking and strategic vision. The present study investigates the complex terrain of defence supply outbound, examining the various aspects of supply chain management, logistics planning, security considerations, regulatory compliance, and technological innovations. In light of changing geopolitical conditions and new forms of aggression, it is critical to recognise and deal with these issues in order to guarantee the preparedness and efficiency of military units participating in expeditionary operations.

Logistics Planning for Outbound Defence Supplies

Planning the logistics of defense supply exports is an essential part of military operations carried out outside of national borders. The planning procedure entails the careful synchronization and enhancement of routes, transportation modalities, and infrastructure to guarantee the prompt and effective provision of vital resources to deployed troops. One of the main obstacles in logistics planning has to manoeuvre through difficult and frequently hostile surroundings, such as rough terrain, bad weather, and possible security concerns. The dynamic character of military operations must also be taken into consideration by logistics planners, since it may call for quick deployment and adaptable supply networks in response to shifting conditions. Logistics planners may improve situational awareness, reduce transportation costs, and optimise routes by utilising cutting-edge technologies like Geographic Information Systems (GIS) and predictive analytics. Moreover, utilising resources and experience to solve logistical obstacles requires cooperation with strategic partners, which include governmental bodies, international organisations, and businesses. In general, the readiness and resilience of military units participating in expeditionary operations depend on efficient logistics planning, which enables them to sustain operational tempo and accomplish mission success in demanding and dynamic circumstances.

Supply Chain Management in Defence Logistics

Defence logistics relies heavily on supply chain management (SCM), which makes it possible for resources, gear, and supplies to move smoothly across international borders to support military operations. For the purpose of ensuring the effective acquisition, storage, and delivery of

necessary supplies to deployed forces, supply chain management (SCM) in the context of outbound defence supplies entails the coordination of multiple stakeholders, including manufacturers, distributors, transporters, and suppliers. The requirement to strike a balance between conflicting priorities, such as cost effectiveness, responsiveness, and resilience, while preserving operational readiness, is one of the major issues facing defence supply chain management. Defence companies use a variety of supply chain management (SCM) techniques, such as demand forecasting, supplier cooperation, and inventory optimization, to attain this equilibrium. Military logisticians can reduce the danger of stock outs or excess inventory by anticipating demand patterns, optimising inventory levels, and utilising data analytics and advanced forecasting tools. In addition, efficient cooperation with suppliers and logistics partners is necessary to minimise disruptions in the supply chain and guarantee the prompt delivery of important goods to the location of need. Defence companies are also investigating cutting-edge supply chain management (SCM) techniques, like just-in-time inventory management, lean logistics, and agile supply chains, to improve flexibility and responsiveness in an era of growing globalisation and complexity. The resilience, agility, and efficacy of defence logistics operations are all improved by efficient supply chain management, which enables armed forces to uphold operational readiness and accomplish mission success in demanding and dynamic circumstances.

Review of literature

(Kundu, 2021) Studied *"Risks in defence procurement: India in the 21st century"* discovered that in 1952, economist John Perry Miller of Yale had anticipated the need for economic analysis in the procurement of military hardware. The reason behind this is because, unlike the two great wars, where economic mobilisation for war was a temporary phenomenon, the Cold War created an environment where "a possibility of a large procurement programme lasting possibly for decades" was true.

(Garg, 2017) Studied *"The Indian Defence Industry"* I discovered that ever since India gained its independence, the pursuit of self-sufficiency has been the driving force behind the development

and expansion of its defence industrial base. When India gained its independence in 1947, the majority of the country's military infrastructure and equipment had been passed down from Britain, the country's former colonial master. During the 1950s, India prioritised its capacity to create equipment on its own with a limited amount of technical expertise. As a result, the country's advanced equipment requirements were met through the importation of equipment.

(Srivastava, 2000) Studied *"Defence Planning in India"* and discovered that a comprehensive perspective on a variety of political, social, economic, technological, and strategic issues is required in order to effectively address the issue of national security, as is commonly understood. Not only does national security entail the protection of geographical boundaries, but it also requires that the nation is capable of constructing a society that is cohesive, egalitarian, technologically efficient, and progressive, and that does so while maintaining a high quality of life.

(KINAGE, 2016) Studied *"Make in India: Opportunities and Challenges in Defence Sector* They came to the conclusion that India's Make in India programme, which is spearheaded by the government, can alter perceptions of the country as a manufacturing powerhouse and potential site for business expansion. A source of frustration for the Indian government is the country's status as the largest importer of weaponry globally. As a result, the government is making efforts to build a robust defence sector in the hopes of transforming the nation into a global manufacturing superpower. It presents an opportunity to strengthen the nation's capacity to manufacture defence materials independently.

(Nambiar, 2023) Studied *A Study of Defence Material Export in India –An Example to Sustainable Business Through Import Substitution* They reasoned that countries' integration into the global market has been an effective means of fostering progress, boosting the economy, and eliminating poverty. In the last two decades, global trade has increased at a pace that is double that of global production, or six percent per year on average. Conventional wisdom holds that trade stimulates economies. Since the creation of the General Agreement on Tariffs and Trade (GATT), the world trading system has benefited from unilateral trade liberalisation as well as eight rounds of multilateral trade liberalisation.

(Mukherjee et al., 2015) Studied *Momentous Changes Defence Reforms, Military Transformation, and India's New Strategic Posture* learned that the Indian government's top defence establishment has known for some time that structural change are necessary. The government of India tasked the Group of Ministers (GoM) with examining the country's national security infrastructure after the 1999 Kargil War and demanded a report outlining the GoM's findings.

(Behera, 2014) Studied *Defence Innovation in India The Fault Lines* and discovered that self-Officials in India have consistently aimed to reduce reliance on foreign suppliers for defence requirements since the country's independence. This prompted the formation of a massive institution that brings together hundreds of public and private companies to develop cutting-edge weapon systems for the nation's military. The production of state-of-the-art military systems by these units has, however, fallen short of expectations.

(Biden & Harris, 2022) Studied *National Security Strategy* Historically, our nation's ingenuity and strength have been greatly enhanced by the private sector and free markets, as I learned. Nonetheless, markets cannot halt the acceleration of technological innovation, the increasing danger of climate change, the disruption of the world's supply chain, or the abuse of the nonmarket by the PRC and other entities.

(Varghese, 2018) Studied *An update to An India Economic Strategy to 2035: Navigating from potential to delivery* I learned that there is a lot of room for improvement to lead to even stronger growth. Tax increases, more access to higher education, the creation of special economic zones, and the privatisation of failing public assets are all part of the proposed reforms that would strengthen the financial system.

(Hedrick, 2009) Studied *India's Strategic Defence Transformation: Expanding Global Relationships* and found out that The Indian military establishment thereupon embarked on a bold but disorganised reform, updating its technology and taking a more international stance in its dealings with other countries. This monograph takes a look at how India's defence relationships have changed over the last decade. It does this by looking at things like public statements that outline the relationships, agreements that are specific to defence, forums that are specifically for defence, the exchange of high-level defence delegations, military exercises that are bilateral (and, to a lesser degree, multilateral), and large defence sales to India.

(Nishith Desai, 2018) Studied *The Indian Defence Industry* it was found that since gaining independence, India has been actively working to become self-sufficient, which has led to the development and expansion of its defence sector. After India gained independence from Britain in 1947, the British colonial power provided the majority of the country's military hardware and infrastructure. In order to satisfy its demands for low-tech equipment, India focused on building its local manufacturing capacity in the 1950s, while importing advanced equipment.

(Das, 2019) Studied *An Overview of Indian Defence Industry: A Transformative Perspective"* It discovered that the sole entity responsible for India's research and development sector is the Defence Research and Development entity (DRDO), while the majority of the defence manufacturing in the country is controlled by the Defence Public Industry Units (DPSUs) and the Ordnance Factory Board (OFB). Much of the influence in India's military sector is held by the government and its agencies.

(Kumar, 1981) Studied *Indian Defence Industry"* I found out that among developing nations, India has one of the largest weapons industrial complexes. At present, it encompasses around 150 privately owned companies, nine defence public sector institutions, and thirty-nine ordnance factories that are overseen administratively by the MoD. The Defence Research and Development Organisation (DRDO) is the senior R&D arm of the Ministry of Defence (MoD), and it comprises around fifty specialised research institutes and institutions.

(Plutzer, 2021) Studied *"Increase In FDI Limit In Defence Sector* and learned that in May 2001, the Indian private sector was granted full access to the defence industry, with licencing conditions; FDI was limited to 26% of the total. Additionally, in 2015, the government automatically approved up to 49% of FDI in the defence industry. According to Press Note No. 4 (2020 Series) dated 17.09.2020, the government has recently liberalised even further, allowing foreign direct investment (FDI) under the automatic route of up to 74% and up to 100% through the government route in cases where it is likely to lead to access to modern technology or for other reasons to be documented.

(BANSAL, 2021) Studied *Self-Reliance In Defence Production* My research led me to the conclusion that April 2018 marked the launch of the Innovation Ecosystem for Innovations for Defence Excellence (iDEX). With the support of universities, R&D centres, individual innovators, small and medium-sized enterprises (SMEs), and startups, iDEX aims to establish an ecosystem

that will foster innovation and technical progress in the aerospace and defence sectors. To help these organisations meet the demands of India's aerospace and military industries, grants, funds, and other types of aid would be provided to them for research and development purposes.

(Iverson & Dervan, 2018) Studied *The Indigenisation Of India's Defence Industry"* and determined that, considering its security situation and strategic goals, India requires an indigenous defence industry. For many years, India has invested heavily in its military and produced a wide range of industrial commodities related to the military. Despite having very little export revenue, the government continues to rely significantly on defence imports, particularly for large platforms. Even though indigenization in the defence industry has been discussed by many high-level committees, very little has been done to really make it a reality. One reason for this is the difficulty that India faces in updating its defence industry.

Studied (Ravichandran & Rao, 2023) *Challenges and Opportunities in The Indian Defence Sector: A Strategic Perspective - The Way Forward* It found that the Indian defence sector has grown tremendously, but that since the Atmanirbhar Bharat programme began, it has grown even more determined and focused. A combination of diplomatic interaction and a two-pronged approach to maintaining and improving a strong soft power image with those neighbours worldwide allows for this to be accomplished. Quickening the procurement process and setting the bar for Make in India activities in the defence industry are two goals of the 2020 revised plan.

(Gupta, 2010) Studied *Opportunities in the Indian Defence Sector* Our analysis shows that the Indian government needs a military industrialization strategy in place alongside favourable planning, procurement, legal, regulatory, and tax climates. Further, making full use of all resources, skills, and competencies, Indian business must respond to this opportunity with speed and decisiveness.

(YADAV, 2023) Studied *Export Promotion Policy In Defence Sector* Several parties are distributing export leads to the registered Indian defence exporters via a website, as I've learned. This platform allows Indian defence exporters to react quickly to international export prospects. Now that the Indian industry has a feedback system built into the improved web platform, export leads can be tracked and followed up on online. The portal has distributed a total of 624 leads.

Outbound Logistics Processes

Fine-tune these 4 steps for an optimized outbound logistics process:

- Order Processing
- Picking and Packing
- Shipping and Sorting
- End-User Delivery

Order Processing

The outbound logistics process begins with an order placed by the client, which is then confirmed by the warehouse when the order is fulfilled. The process of this method can be streamlined and the possibility of errors that could have happened otherwise can be decreased by using a warehouse management system (WMS).

Picking and Packing

After the order has been confirmed, the product that was ordered is selected from the stock for delivery. While this is going on, the WMS is working in the background to update inventory records and make adjustments to the product count and SKUs. Once it is complete, the products are packaged and labelled (you can read about shipping labels here). These products are sorted by the carrier service and organised.

Shipping and Sorting

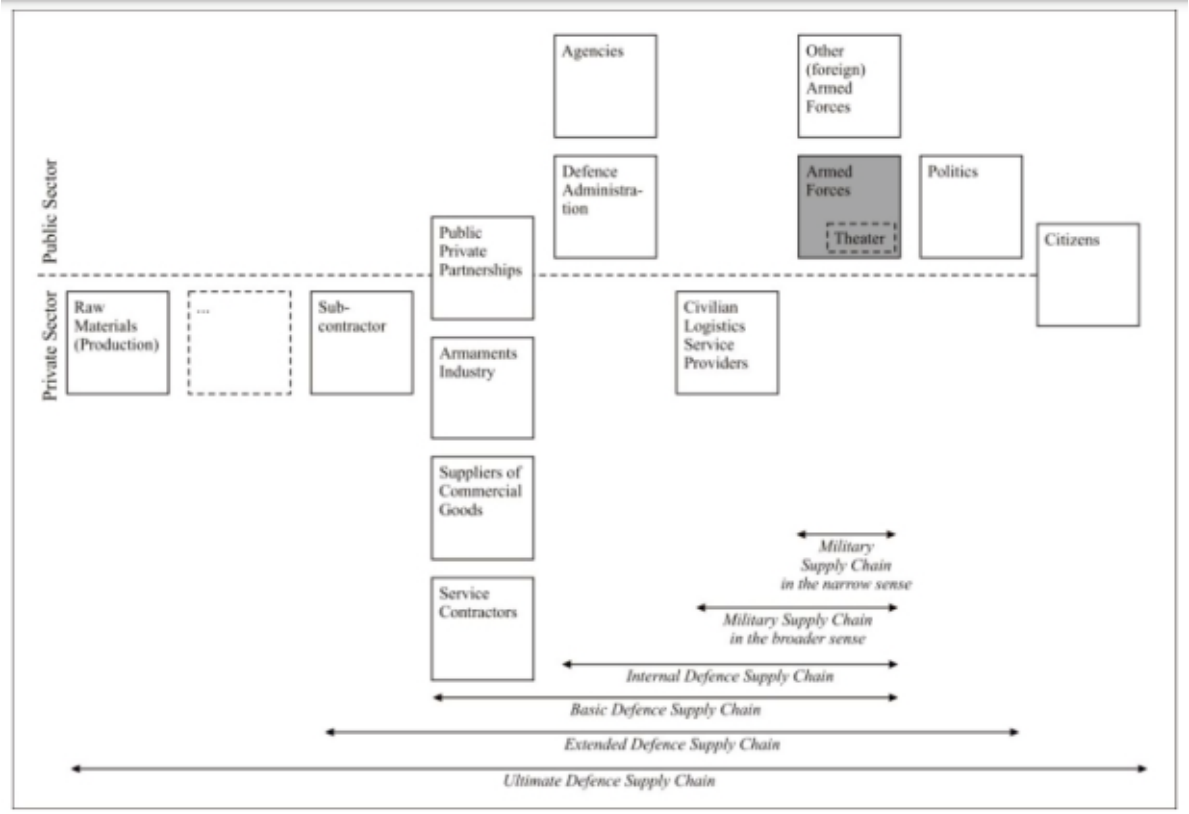
Once the packing and sorting procedures are finished, goods vehicles pick up the goods and deliver them to the proper distribution location. When the products reach the distribution centre that is located the closest to the customer's location, the relevant delivery personnel pick up the orders. The companies that handle this process are shipping specialists.

End-User Delivery

The last phase of logistics is getting the goods to the customer, which involves both incoming and leaving operations. Whether it's a grocery store or a person, the last link in the inbound and outbound logistics chain is getting the product to the consumer.

Defence supply chain structure

Defence supply chains typically involve the following parties: citizens, political decision-makers, armed forces, international agencies, civilian logistics service providers, the armaments industry, suppliers of other goods needed for national security, public-private partnerships, and the defence administration (which oversees procurement procedures). There are three different groups that oversee these network nodes: the government, the military, and the business sector. An intricate representation of the newly-developed defence supply chain system is shown in the accompanying image.



Defence supply chain structure (source: Dorobek/Eßig/Klein-Schmeink, 2009)

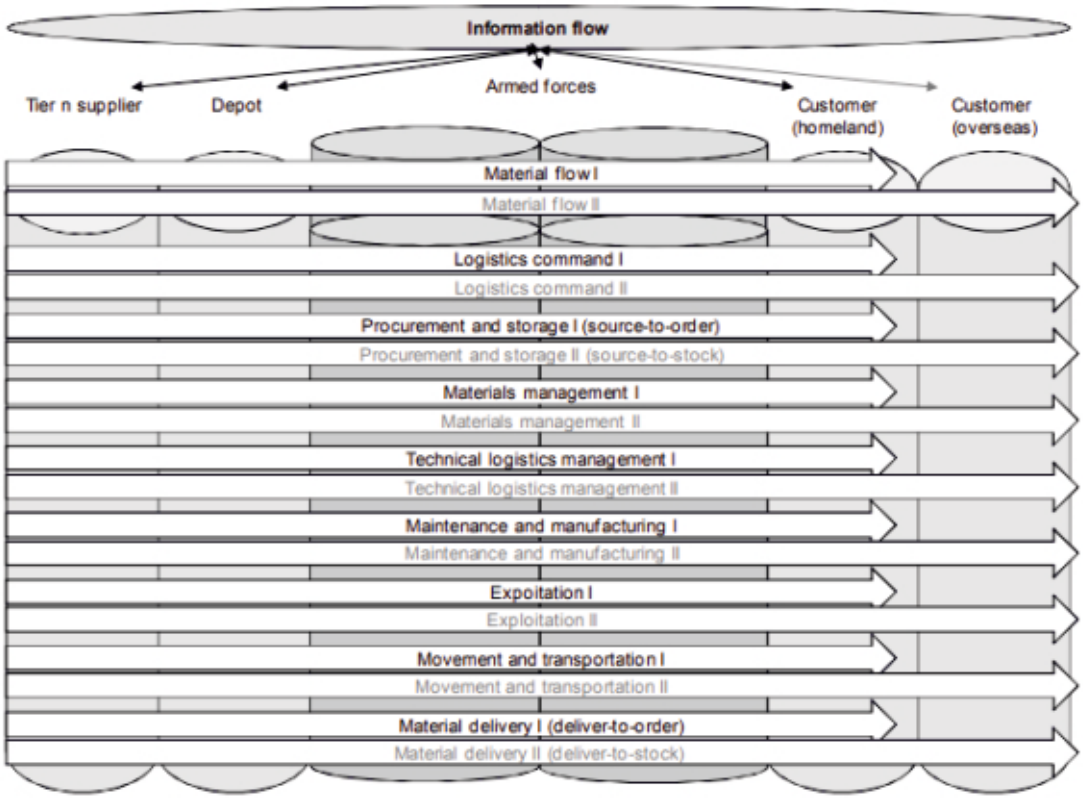
After talking about how to connect the recognised parties in defence supply chain management, we eliminated a few kinds of supply chains. With a common desire for peaceful coexistence, the locals serve as both the "ordering party" and the first link in the defence supply chain. It is the public's duty to guarantee national security since it is a political objective to preserve a free and peaceful cohabitation. The ruling elite has decided to use military action to achieve this goal. To provide military services, the armed forces are both the principal organisation and a crucial component. Military operations (abroad), typically conducted in conjunction with foreign armed

forces, are the primary performance part. The Military Supply Chain, in its most basic sense, is the network of interconnected military installations that house solely service members. In contrast, a "military supply chain" is a more general setup in which private logistics companies offer transportation services via a network of interconnected nodes. The military services do not always have authority over the procurement management of the defence supply chain. Rather, the responsibility for this lies with the Defence Administration, the civilian branch of the military. To facilitate the exchange of goods and services between the military and the commercial sector, the military administration posts bids for the general public to review. One option is to delegate this responsibility to so-called "agencies" that handle requests for foreign cooperation. Two examples are the NATO Maintenance and Supply Agency (NAMSA) and the European Organisation Conjointe de Coopération en matière d'Armement (OCCAR). Among other things, NAMSA supervises the NH90/TIGER helicopter programme. An internal defence supply chain is another name for the defence Administration, which is a civilian body that is also a part of the military forces. When looking at the institution in question (the military forces), it is possible to get a holistic view of its suppliers and consumers by using the Defence Supply Chain. To better serve our troops while they are away from home, the government and private companies form public-private partnerships (PPPs). Commercial goods and service providers, civilian service contractors, and arms manufacturers are all distinct segments of the private sector. On the other hand, under a "Extended Defence Supply Chain," the individuals designated as direct "customers" of security services include both governmental level officials and subcontractors. All things considered, the defence supply chain encompasses the entire industry. This series of steps begins with the individual, who ultimately makes use of defence goods and services, and continues via the armed forces, the defence department, the realm of defence policy, each supplier and contractor, and the producers of raw materials. It is possible to classify the many participants in defence supply chains according to their sector (private, public, or defence) and location (national or foreign), as shown by the element structure analysis. The fragmented nature of military operations is a major contributor to the growing complexity of interfaces. This emphasises the need for Defence SCM to incorporate safety and security measures.

Defence supply chain processes

One possible ingredient for a fruitful SCM rollout is shifting focus from functions to processes. Nine operational procedures were identified as crucial by the Global Supply Forum in 1996. Among these include order fulfilment, demand management, procurement, customer relationship management, customer service management, the returns channel, and production flow management. Since these corporate activities primarily affect private supply chains, it is preferable to stop them from accidentally making their way into defence supply networks.

Instead, the logistics process is highlighted because it is considered the most crucial when analysing supply chains in the defence industry. By definition, it is the study of planning, executing, and overseeing the movement and upkeep of military forces (NATO, 2007). Logistics, in its widest sense, encompasses all aspects of military operations that help the armed forces carry out their various duties. Services such as personnel transportation, facility acquisition, construction, operation, and design and development, procurement or furnishing, support for medical and health services, and material storage, transportation, distribution, disposal, maintenance, and evacuation are all examples of subprocesses that fall into this category. Although NATO proposes these subprocesses, different armed forces apply them in different ways. For example, the German military's logistics method was integrated into the SASPF ERP solution in 2000, which also saw the development of a process model. Core processes include things like personnel, health care, and armaments/logistics, whereas support processes include things like infrastructure, environmental protection, and individual training. The Bundeswehr's control procedures encompass planning, arranging, and controlling. These three categories allow for further subdivision of the nine main processes that make up the process model. More than one subprocess is involved in the logistics and weapons process.



Defence supply chain business processes (source: authors)

Methods

Approach to research In order to verify if the SCSM approach is suitable for defence supply chain management, an empirical investigation is required, following the evaluation of the theoretical foundations in the preceding section. Finally, we want to know how to connect or implement defence supply chains so that we may achieve the efficiency and effectiveness goals of supply chain management strategy (SCSM), which are centred on national security and cost minimization, respectively. Given the exploratory nature of the case study approach and the nature of the research question ("how"), random sampling may not be necessary or even desired, even though it seems acceptable to suit the objective of the empirical investigation. The data is used to select the unit of analysis through the use of purposive sampling. By adhering to this procedure, you may be sure that the cases you use are really representative of your research topic. Defence supply networks are considered the unit of investigation due to their explicit reference in the research question. In an ideal unit of study, the researcher would have easy access to a wide variety of individuals, processes, and/or buildings. We have fulfilled every one of these conditions: To get entry to the analytical unit, one must first complete a multi-year programme called Supply Chain Safety Management. An extensive network of entities is involved in the defence supply chain, including the Federal Office of Defence Technology and Procurement (BWB), the Bundeswehr Logistics Centre, the Armed Forces Staff S IV of the Federal Ministry of Defence, and a research team from the University of the Bundeswehr Munich. Additionally, the case study's structure reveals the variety of individuals, procedures, and/or entities that are required. Since defensive supply networks may be seen as a whole, they can be dissected to examine their individual parts. Depots, the Bundeswehr Logistics Centre, the Joint Support Command, the Joint Forces Command, and the procurement organisation (BWB) are all subsystems that fall under this category. Thus, the empirical investigation incorporates a single case study. Subsystems and the material and information flows that comprise them are shown here, together with the complete system itself:

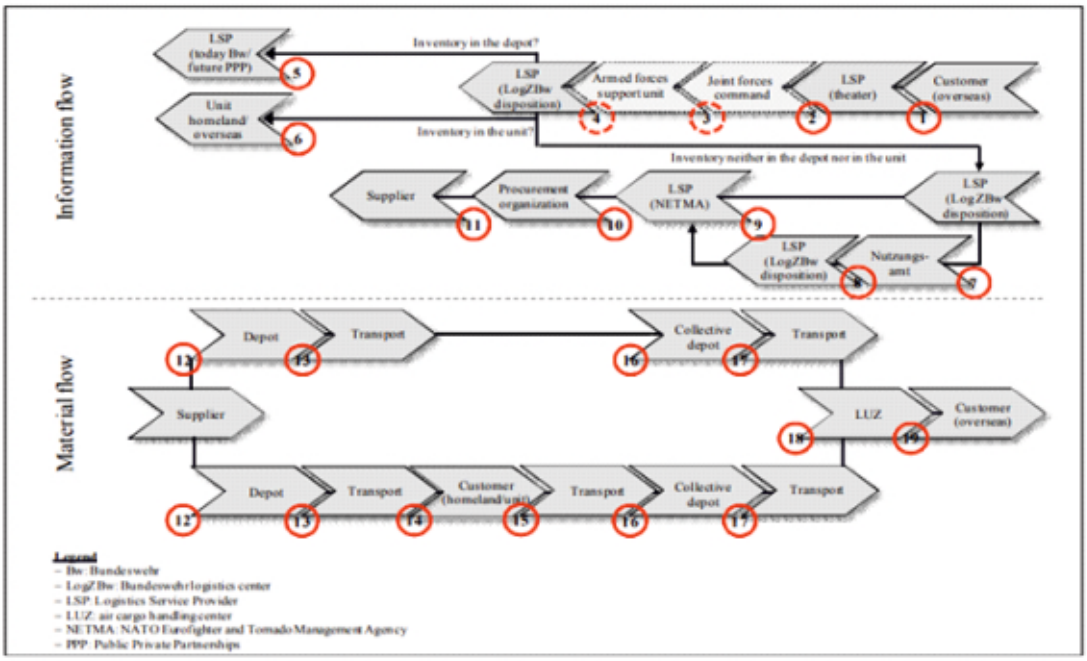


Figure: Overall system of the analysed defence supply chain and its subsystems

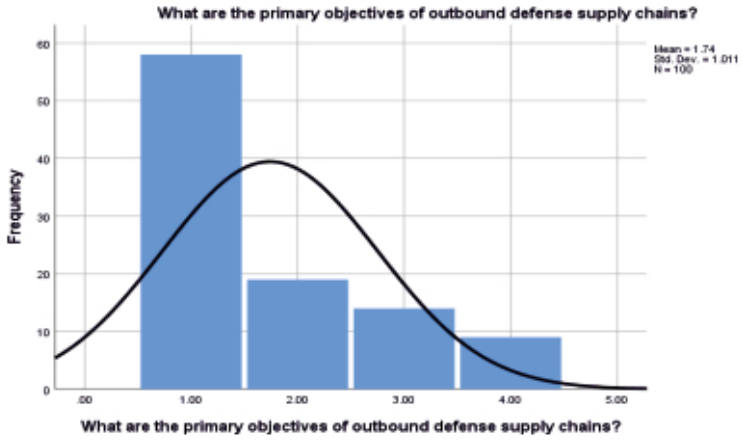
Data collection

Conducting a pilot case study prior to conducting exploratory case studies is highly recommended. The latter, sometimes called a feasibility study, aims to prevent the major case study from relying on incorrect data from the pilot study, which could lower the research's overall quality. A shortened version of the questionnaire was administered during in-person and over-the-phone interviews to collect data. Specifically, in each of the eight subsystems of the defence supply chain that was evaluated, two researchers—one from the Bundeswehr Logistics Centre and one from the client (overseas)—conducted interviews. For data collection, we adhered to the guidelines proposed by Yin (2009) (cf. Yin, 2009). By involving numerous researchers in the data gathering phase, a technique called investigator triangulation is employed to either completely eliminate or significantly minimise subjective bias. The data collected for the pilot case study was also entered into a database. Finally, the evidentiary chain remained intact thanks to details obtained from the interviews. The case study was enhanced in quality thanks to the positive effects on construct validity and reliability brought about by these three principles.

Sample size -100 Respondents

Data analysis

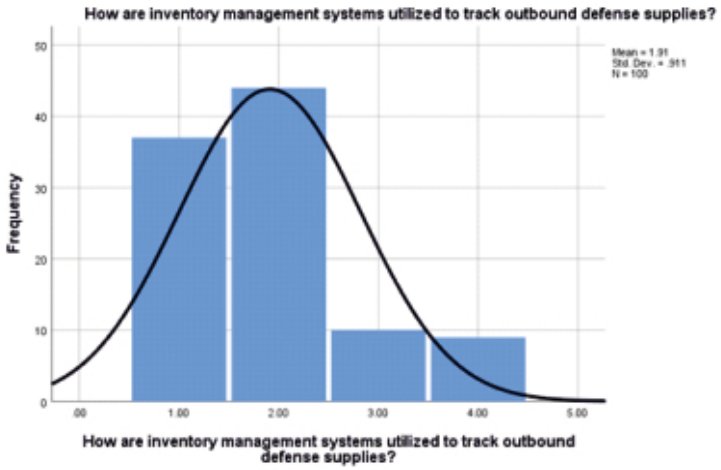
What are the primary objectives of outbound defence supply chains?					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Maximizing profit	58	58.0	58.0	58.0
	Ensuring national security	19	19.0	19.0	77.0
	Minimizing environmental impact	14	14.0	14.0	91.0
	Expanding market share	9	9.0	9.0	100.0
	Total	100	100.0	100.0	



The analysis of the provided data reveals the primary objectives driving outbound defence supply chains. Foremost among these objectives is the imperative to maximize profit, as indicated by a significant majority of respondents (58%). This underscores the fundamental importance of financial viability and efficiency in the operations of defence supply chains. Following closely behind is the objective of ensuring national security, cited by 19% of respondents. This highlights

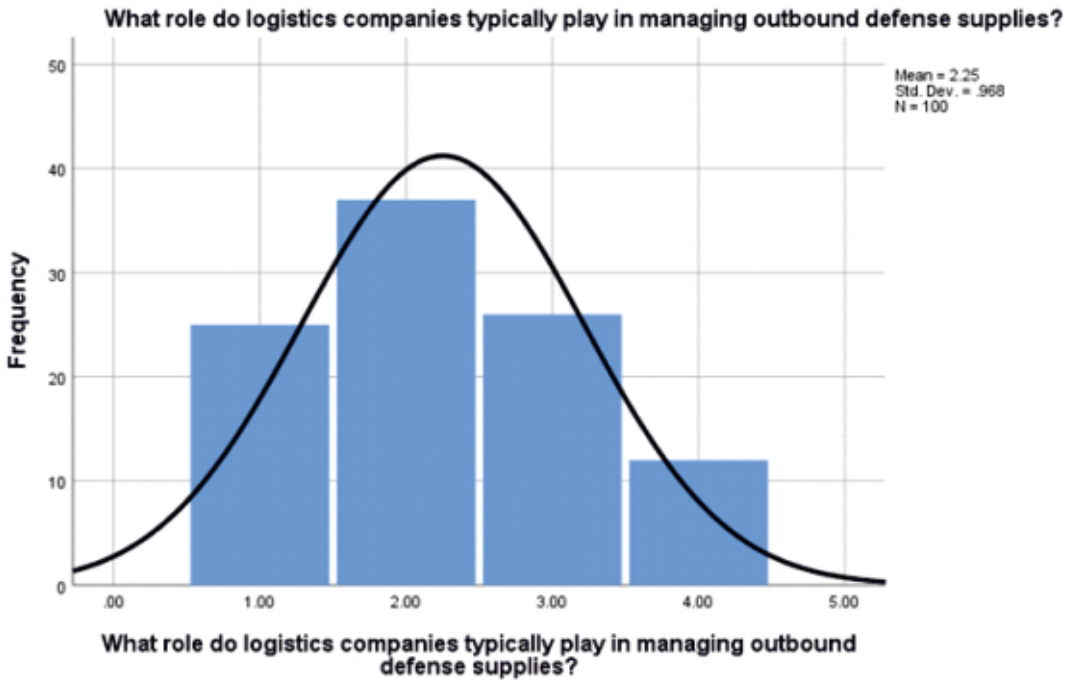
the critical role that defence supply chains play in supporting and safeguarding national defence capabilities and interests. Additionally, there is notable attention given to minimizing environmental impact, mentioned by 14% of respondents. This reflects a growing awareness within the industry of the need for sustainable practices and environmental stewardship. Lastly, expanding market share is identified by 9% of respondents, indicating a desire for growth and competitiveness within the defence sector.

How are inventory management systems utilized to track outbound defence supplies?					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	By relying solely on manual record-keeping	37	37.0	37.0	37.0
	By implementing RFID technology	44	44.0	44.0	81.0
	By disregarding real-time data	10	10.0	10.0	91.0
	By avoiding collaboration with suppliers	9	9.0	9.0	100.0
	Total	100	100.0	100.0	



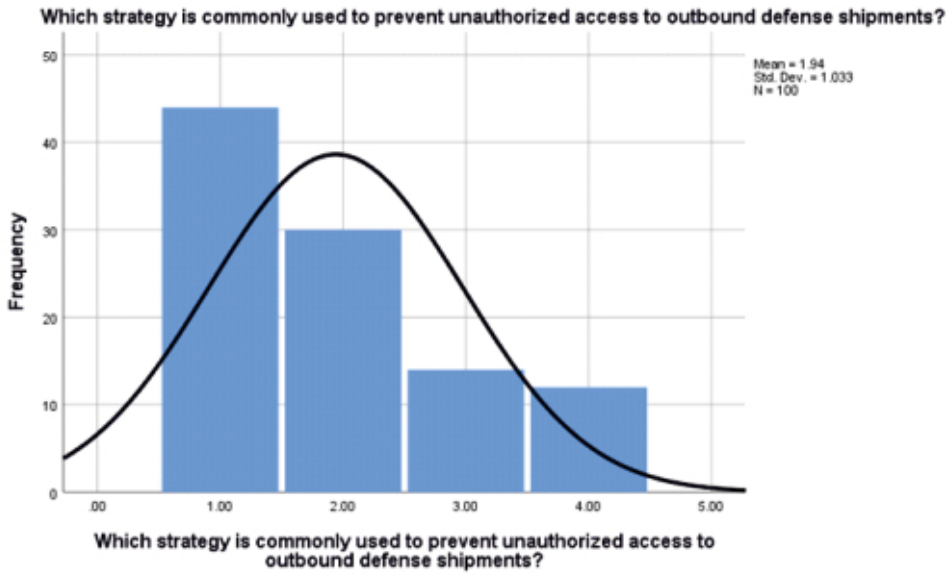
Inventory management systems play a crucial role in tracking outbound defence supplies, with various approaches employed for this purpose. According to the data provided, the most common method is through the implementation of RFID technology, favoured by 44% of respondents. RFID enables real-time tracking and monitoring, enhancing visibility and accuracy in supply chain management. However, 37% of respondents still rely solely on manual record-keeping, which can be less efficient and more error-prone. Additionally, 10% disregard real-time data, potentially hindering timely decision-making. Collaboration with suppliers is also highlighted as an area for improvement, with 9% of respondents avoiding such collaboration.

What role do logistics companies typically play in managing outbound defence supplies?					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Providing cybersecurity services	25	25.0	25.0	25.0
	Handling transportation and distribution	37	37.0	37.0	62.0
	Conducting military operations	26	26.0	26.0	88.0
	Manufacturing defence equipment	12	12.0	12.0	100.0
	Total	100	100.0	100.0	

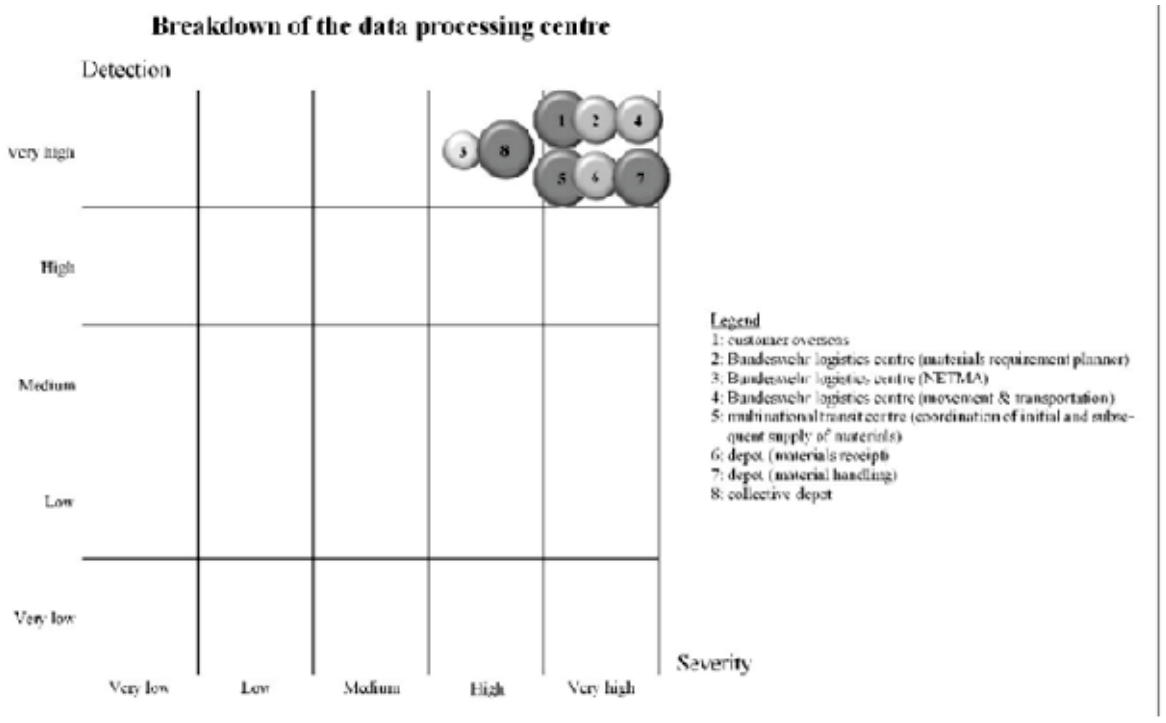


Logistics companies play a crucial role in managing outbound defence supplies, primarily by handling transportation and distribution (37%). They also provide cybersecurity services (25%), support military operations (26%), and in some cases, manufacture defence equipment (12%). Overall, they ensure the efficient movement and delivery of supplies while contributing to cybersecurity and operational support in the defence sector.

Which strategy is commonly used to prevent unauthorised access to outbound defence shipments					
		Frequency	Percent	Valid Percent	Cumulative percent
	Transparency	44	44.0	44.0	44.0
	Encryption	30	30.0	30.0	74.0
	Disguising Cargo	14	14.0	14.0	88.0
	Social Media Marketing	12	12.0	12.0	100.0
	Total	100	100.0	100.0	



To prevent unauthorized access to outbound defence shipments, encryption is commonly used to secure sensitive information, noted by 30% of respondents. Transparency, cited by 44%, plays a pivotal role by providing visibility into the shipment process, enabling monitoring for any anomalies. Disguising cargo (14%) helps minimize interception risks, while social media marketing (12%) may be employed to communicate security measures. These strategies collectively ensure the security and integrity of defence shipments in transit.



Following this, the data was analysed using within-case and cross-case methods. The military supply chain as a whole was better understood after employing within-case analysis. This is why the empirical inquiry here is split into two separate phases: An FMEA sheet with all of the identified and evaluated risk variables was initially generated for each subsystem, as mentioned during the preparation phase. A risk map was constructed using this information for the purpose of making more accurate comparisons between the different risk factors. After that, comparing the different subsystems was the main objective of the following cross-case analysis. Finding commonalities between the various subsystems was, in fact, the major goal of the empirical study. Using this analytical method, we were able to determine which subsystems shared an understanding of the characteristics of specific risk variables, such as the possibility of a data processing centre failure, which might compromise the defence supply chain's process safety. As a result, these characteristics of the risk could be seen as common threats to the defence supply chain. As a result, the prevalent risk variables in the defence supply chain might be categorised based on their importance or lack thereof.

Results

The pilot case study was finished when the case study report was written. In addition to its shared components, the report offered significant perspectives, such as:

- The examined defence supply chain is currently inefficient. This is proven by the numerous security and safety-related risk factors that are dispersed over the appropriate risk categories and have been proven to compromise the continuity of the supply chain. Particularly noteworthy is the minimal likelihood of discovery for numerous assertions made in the questionnaire, which is relevant to all institutions. This is mainly due to the fact that the actual occurrence and detection of a risk factor do not coincide in time or place. Instead, it is found later on in the supply chain for defence. Now we may utilise the statement "Data get lost" to illustrate the point. While waiting for the data, the relevant institution will formally determine if this component is there, for instance by contacting the institution.

- In addition, the efficiency of the defence supply chain that is being studied is now quite poor. The fact that there is a great deal of unrealized potential for cost reduction in the defence supply chain is evidence of this. To illustrate the point, the operational region's military end user

requests that orders be placed only after all stock has been depleted. Air shipping, the most expensive option, ends up delivering more than 90% of the items since it reduces the time it takes to go from placing an order to receiving them. Forgoing more expensive forms of transportation like rail, road, or sea presents a substantial opportunity to save money.

- Inadequate communication and cooperation across the many links in the defence supply chain significantly amplifies the dangers already there. A shortage of SCM knowledge is closely related to this. So far, no group has investigated the claim. Upstream and downstream organisations in the defence supply chain remain unknown. But it's clear that separate apps are in the works. There is a wide range of dramatic variation in the interaction consumer internationally. When one group of soldiers leaves the operational region, another group is sent in to take their place, often every four months. The data collected from the pilot case study allows us to derive the following conclusions: The disinterestedness of the various soldier contingents in one another and the inadequate turnover (e.g., in terms of outstanding deliveries) were distinguishing features of interfaces 1 and 19, respectively. Then there are repercussions, such momentarily losing supply control because of an inventory shortage or having to re-release an order. The efficiency and effectiveness of the defence supply chain are thus significantly impacted.

- Last but not least, the defence supply chain's nimble nature raises serious risk concerns, which must be addressed. As a result, the pilot case study proves that people don't know how logistical support operations differ from basic logistics. The many goals that any organisation has lend credence to this idea. For a global client, the most important thing is to ensure efficacy or continuity of supply. One potential threat to the safety and security of this area is the practice of not always giving top attention when labelling orders released by clients located abroad. Deciding what matters most isn't the only thing this makes more difficult. The suggested form of transportation (air travel) and the resulting price hike are both affected by this. On the other hand, ensuring effectiveness while keeping costs low is the top objective for the procurement organisation. It would be detrimental to supply continuity if orders that the client released from overseas were partially modified quantitatively and/or qualitatively and then never used. This poses a growing threat.

Conclusion

In conclusion, the preparedness, resilience, and success of military operations that transcend national boundaries depend on the efficient coordination and administration of defence supply exports. In this research paper, we have examined the numerous intricacies and difficulties of outbound defence logistics, including supply chain management, security concerns, legal compliance, logistics planning, and technology development. The purpose of this paper was to lay out the groundwork for a military-specific SCM. We have examined the defence supply chain's strategies, methods, and structures in this light, and we have shown how important it is to integrate security and safety components through the use of a particular management element. Because of this, the SCSM method was adopted; its purpose is to strike a balance between the two competing financial objectives of efficiency and continuity of supply in the supply chain. What followed was an empirical research into the necessity of adjusting SCSM as a management element in defence supply chains. One the one hand, we know what threats there are to the security of the defence supply chain. However, issues that might compromise effectiveness and efficiency have been found. The SCSM's stated goal of lowering costs without sacrificing supply chain stability led to the conclusion that this strategy warrants further investigation. To broaden the scope of the pilot case study, incorporate the entire military supply chain, and execute the full strategic planning process, additional research is necessary.

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The Impact of Product Display on Consumer Attention and Buying Intention

Sneha Jaiwal

Abstract

"The study, titled - The Impact of Product Display on Consumer Attention and Buying Intention, critically examines the complex relationship that exists between consumers and product displays in the dynamic retail environment." The study investigates how product arrangement, presentation, and visual appeal work as influencing variables in consumer decision-making, with a focus on the issues given by an excess of alternatives. Based on a thorough evaluation of the literature, the study develops a conceptual framework that includes independent variables related to display characteristics, a mediator variable (customer attention), and moderating factors related to consumer and retail environment characteristics. The impact of display location, size, colour, movement, and lighting on consumer attention and purchasing intention is investigated using hypotheses and objectives. The study takes a mixed-methods approach, gathering primary data from 70 people in the NCR Delhi region using interviews and questionnaires and leveraging secondary data from diverse sources. Descriptive statistics offer subtle insights into age-related trends, illustrating the varied impact of appealing displays on various age groups. Chi-Square Tests are used to investigate correlations between categorical variables, providing useful insights into the relationship between education level and shopping patterns. The findings have important implications for organisations looking to improve their marketing strategies by optimising product displays, emphasising the need of context-aware interpretation, and recognising the changing landscape of customer behaviour in the retail sector. Finally, this study serves as a thorough guide, unravelling the subtle dynamics that impact consumer decisions in reaction to product displays and laying the groundwork for future research in this expanding topic."

PG Scholar (Management), Christ University

Introduction

In the constantly changing environment of retail, where consumers are continuously overloaded with options, attracting attention and influencing purchasing intentions has become a critical task (Smith et al., 2020; Johnson & Lee, 2019). Among the many factors that influence consumer behaviour, the importance of product displays in retail spaces has emerged as a powerful and significant device.

Product arrangement, presentation, and aesthetic appeal serves as the link between a product and its prospective consumer, acting like unspoken salespersons within the retail environment (Chang et al., 2018). These displays have an extraordinary potential for capturing a consumer's attention, engage their senses, and ultimately influence their purchasing decisions. Understanding the intricate connection between product displays, consumer attention, and purchasing intentions has become a priority for both retailers and marketers.

This study begins an interesting analysis of this complex relationship, attempting to uncover the many features of product displays that influence consumer behaviour. It focuses into display visual aesthetics, strategic placement within retail settings, and the basic psychological factors that influence consumer responses (O'Boyle et al., 2021). By giving into focus these key areas, this study aims to provide a thorough knowledge of how businesses can use product displays to fascinate consumers and influence their purchasing decisions.

As we continue through this exploration, we hope to understand the complexities that determine why and how consumers make decisions in the huge retail ecosystem. The effect of product display on consumer attention and purchasing intent is more than a transactional aspect of commerce; it is a dynamic interplay of psychology, aesthetics, and strategic marketing. Allow this study to serve as a guide into the world of consumer decisions, where the visual attractiveness of product displays plays a critical role in the complicated relationship between consumers and the products that they purchase (Smith et al., 2020; Johnson & Lee, 2019, Chang et al., 2018, O'Boyle et al., 2021).

2. Literature review

Displaying products is a standard strategy for advertising used by businesses of all kinds to attract consumers' attention, offer them with details about the product, and encourage them to make a purchase.

2.1 Consumer Attention

Consumer attention is a valuable resource that firms have constant competition for. Displaying products is one approach to attract the attention of customers. Products that have strong visibility are more likely to be seen by customers. This is especially true in retail settings, where customers are constantly inundated with visual signals (Behe et al., 2013).

Consumer attention is defined as the cognitive act of choosing and focusing on one stimulus while disregarding others (James, 1890; Pashler, 1999). A variety of things influence it, including the consumer's goals, motives, and expectations. A consumer seeking for a new pair of shoes, for example, is more likely to pay attention to shoe displays than a consumer who is not looking for new shoes.

According to research, product presentation can influence consumer attention in a variety of ways. Behe et al. (2013) discovered, for example, that displaying products with signage that gave information about the products' characteristics and benefits boosted consumers' attention to the products. Another study, conducted by Gorji et al. (2020), discovered that sales promotion displays in retail outlets had a beneficial effect on client attention.

In addition to these studies, a growing collection of research on the impact of digital product displays on consumer attention is available. For example, Lee et al. (2020) discovered that animated product displays were more effective than static product displays at attracting consumers' attention.

2.2 Product Display

A variety of factors can influence how much attention shoppers give to a product display. These are some examples:

2.2.1 Location: Consumers are more likely to pay attention to products that are displayed in high-traffic areas or at their level of attention.

2.2.2 Size and prominence: Larger and more prominent displays are more likely to catch the attention of consumers.

2.2.3 Colour and contrast: Products displayed in vibrant colours or that contrast with their surroundings are more likely to be seen by customers.

2.2.4 Movement: Displays that feature movement, such as animated signs or films, are more likely to capture the attention of consumers.

2.2.5 Lighting: Well-lit displays are more likely to catch the attention of customers.

2.3 Buying Intention

The possibility that a consumer will purchase a product is referred to as purchasing intention. Displaying products can influence intention to buy in a variety of ways. For the first time, it can raise consumer awareness of the products. When customers see things clearly displayed, they are more likely to become aware of them. Second, it can give consumers with product information such as features, benefits, and pricing. This data can assist consumers in making informed purchasing decisions. Third, it may generate a favourable emotional response to the products. Consumers are more likely to have a good emotional response to products that are displayed in an attractive and appealing manner. This can result in greater intention to buy. (Suwondo et al., 2020)

A number of studies have been conducted to investigate the effect of product display on consumer attention and buying intention. These research' findings generally support the hypothesis that display products can have a favourable impact on both attention and purchasing intention.

Behe et al. (2013) discovered, for example, that presenting products with advertising that gave information about the products' characteristics and benefits increased consumers' attention to the products as well as their buy intention. Suwondo et al. (2020) discovered that advertising products with price discounts and bonus packs enhanced consumers' purchasing intent.

In addition to these studies, there is an expanding body of research on the impact of digital product displays on consumer attention and purchasing intention. For example, a study by Gorji et al. (2020), discovered that sales promotion displays in retail outlets had a beneficial impact on customer purchase and repurchase intentions. Chang et al. (2016) discovered that various styles of visual apparel advertisements had varying effects on consumers' brain activation and purchase intentions.

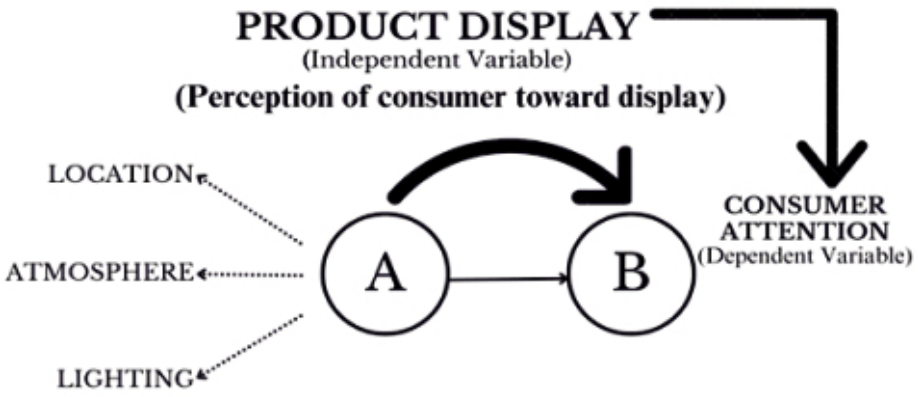
2.4 Implications for Businesses

According to the findings of this research, displaying products can be an efficient strategy for businesses to enhance consumer attention and purchasing intention. This understanding can be used by businesses to create more successful product presentation tactics.

For example, companies may use simple but effective advertising, strong product displays, and highlighting the qualities and advantages of their items. Companies may additionally use digital product displays to provide consumers with engaging and interactive experiences.

The impact of product display on consumer attention and intention to buy is a complex and multidimensional topic. According to the research, however, exhibiting products can be a profitable way for companies to improve sales. This knowledge can be used by businesses to create more successful marketing strategies.

3. Conceptual Framework



Conceptual Framework: The Impact of Displaying Products on Consumer Attention and Buying Intention

(Adapted from Behe, Zhao, Sage, Huddleston, & Minahan, 2013; Suwondo, Susilo, & Widyaningrum, 2020; Gorji, Siami, & Katoul, 2020)

3.1 Independent Variables

3.1.1 Product Display Characteristics:

- Location (high-traffic areas, eye level)
- Size and prominence (large displays, prominent placement)
- Colour and contrast (bright colours that contrast with the surrounding environment)
- Visualisation (animated signs, videos)
- Display lighting (well-lit displays)

3.2 Mediator Variable

3.2.1 Consumer Attention:

- Visual perception
- Attention to detail

3.3 Moderating Factors

3.3.1 Characteristics of the Consumer:

- Personality characteristics
- Shopping objectives
- Previous observes

3.3.2 Retail Environment Characteristics:

- Store layout
- Store atmosphere
- Sensation signals

3.4 Dependent Variables

3.4.1 Purchasing Intention:

- Purchase Prospectivity
- Preference for brands
- Willingness to pay

Arrows

The arrows in the conceptual framework represent the hypothesised relationships between the various variables. The arrow connecting Product Display qualities to Consumer Attention, for example, demonstrates that product display qualities can influence consumer attention. The arrow from Consumer Attention to Buying Intention demonstrates that consumer attention can impact purchasing intention.

Consumer Attention as a Mediator

The conceptual framework also posits that customer attention mediates the relationship between product display attributes and purchasing intention. This suggests that product display elements can influence purchasing intention by first influencing consumer attention. . A large, visible, and brilliantly coloured product display, for example, is more likely to capture consumer attention. This enhanced attention is more likely to lead to improved product awareness, which could eventually lead to higher purchasing intent.

Consumer and Retail Environment Characteristics Have Moderating Effects

According to the conceptual framework, consumer and retail environment features can modify the relationship between product display attributes and consumer attention. Consumers who are more invested in the product category, for example, are more inclined to pay attention to product displays. Similarly, more dynamic store spaces are more likely to draw consumer attention to product displays.

Hypothesis

Hypothesis 1: Products displayed at eye level and in high-traffic areas will attract more attention from consumers than those displayed at lower levels and in less-trafficked areas.

Hypothesis 2: Consumers will pay more attention to products displayed in bright colours that contrast with their surroundings than to products displayed in bland colours that blend in.

Hypothesis 3: Consumers will pay more attention to products displayed in dynamic and exciting ways, such as through movement or animation, than to those displayed in static and uninteresting ways.

Hypothesis 4: Consumers will pay more attention to products with clear and informative signage than to products without display or with unclear or incomplete displays.

Hypothesis 5: Consumers are more likely to buy products they are interested in than products they are not interested in.

Hypothesis 6: Consumer characteristics, such as involvement and personality traits, will moderate the impact of product display on consumer attention and purchase intention.

Hypothesis 7: The impact of product display on consumer attention and purchasing intention will be moated by retail environment characteristics such as store layout and ambience.

4 Objective Of The Study

1. To Examine the effect of product display location on consumer attention (eye level vs. lower levels, high-traffic areas vs. less-trafficked regions).
2. To Determine how much consumer attention influences the relationship between product display attributes and buying intentions.

5 Research Methodology

A Research Methodology defines the purpose of the research, how it proceeds, how to measure progress and what constitute success with respect to the objectives determined for carrying out the research study. I aim to carry out research which is exploratory in nature.

Primary Data

I aim to collect primary data through Interview and questionnaire method

Sample size: 70

Sample area: NCR Delhi

Sample units: Individual entities in NCR Delhi

Sources of secondary data:

I aim to collect secondary data for my research work through the following sources-

- Books
- Magazines
- Journals
- Articles,
- Reports related to Product Display on Consumer Attention and Buying Intention and
- Internet

6 Data Analysis

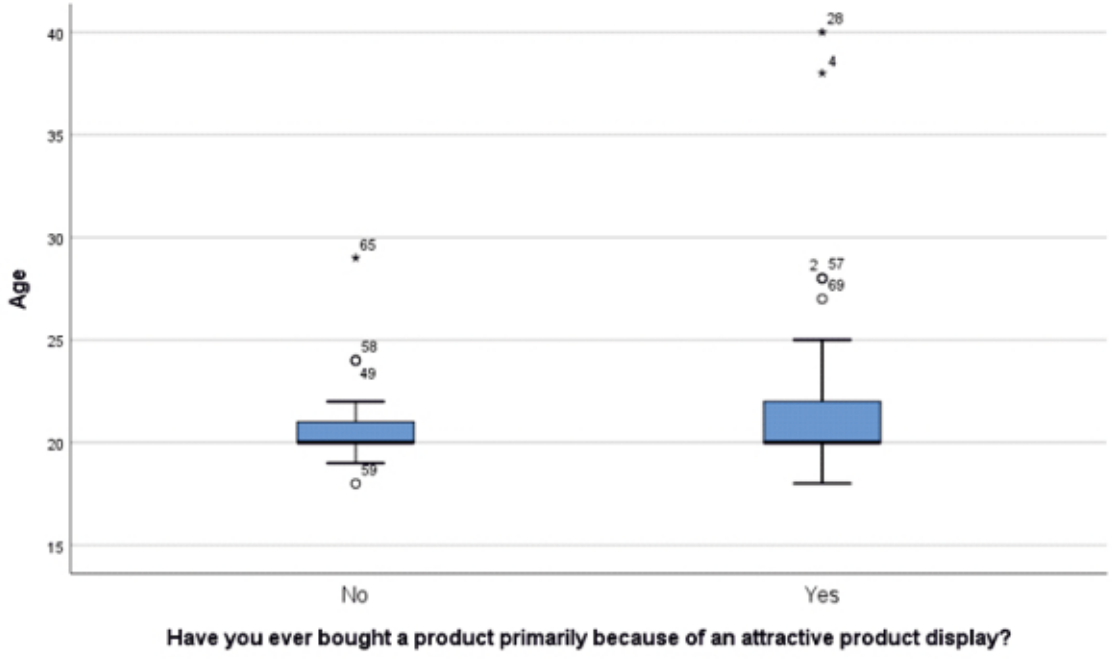
Descriptives					
	Have you ever bought a product primarily because of an attractive product display?			Statistic	Std. Error
Age	No	Mean		20.95	.514
		95% Confidence Interval for Mean	Lower Bound	19.88	
			Upper Bound	22.02	
		5% Trimmed Mean		20.68	
		Median		20.00	
		Variance		5.548	
		Std. Deviation		2.355	
		Minimum		18	
		Maximum		29	
		Range		11	
		Interquartile Range		2	
		Skewness		2.245	.501
		Kurtosis		6.329	.972
	Yes	Mean		21.94	.608
		95% Confidence Interval for Mean	Lower Bound	20.72	
			Upper Bound	23.16	
		5% Trimmed Mean		21.31	
		Median		20.00	
		Variance		18.142	
		Std. Deviation		4.259	
		Minimum		18	
		Maximum		40	
		Range		22	
		Interquartile Range		3	
		Skewness		2.899	.340
		Kurtosis		9.551	.668

The descriptive data reveal interesting trends in the age distribution in two distinct groups: those who have and have not purchased a product primarily due to an appealing product presentation. Individuals who have not made such purchases ("No") have a mean age of around 20.95, with a 95% confidence range ranging from approximately 19.88 to 22.02. The 5% trimmed mean is around 20.68, while the median age is 20.00. This group, in particular, has a right-skewed distribution, as shown by a skewness score of 2.245, and has heavier tails than a normal distribution, as indicated by a kurtosis value of 6.329.

Individuals who have made purchases motivated by appealing displays ("Yes"), on the other hand, had a somewhat higher mean age of around 21.94, with a 95% confidence range ranging from around 20.72 to 23.16. The 5% trimmed mean is around 21.31, and the median age is 20.00, which matches the "No" group. This category, like the "No" group, has a right-skewed distribution (skewness = 2.899) with significantly heavier tails, as seen by a kurtosis value of 9.551.

In conclusion, while both groups have a median age of 20.00, those who have made purchases motivated by appealing displays have a somewhat higher average age. Both groups have right-skewed distributions, indicating a concentration of ages at the younger end, while the "Yes" group has more variability and longer tails. These nuanced insights on age distribution give a solid foundation for understanding the demographics of people influenced by product displays.

BOX PLOT



The graph shows the descriptive statistics for the variable "Have you ever bought a product primarily because of an attractive product display?" broken down by age group. The mean response for "Yes" consistently outnumbers the mean response for "No" across all age groups, demonstrating that older participants are more likely than younger participants to have purchased a product due to an appealing presentation. The standard deviation figures also regularly show that those who have made purchases as a result of appealing displays have more variability than those who have not. This tendency is consistent with the overall findings, which indicate that older people are more vulnerable to the influence of appealing product displays on their purchasing decisions.

Finally, the graph supports the assumption that appealing product displays have a stronger influence on older consumers than on younger consumers. Despite the study's modest sample size, the findings provide useful insights on age-related differences in consumer behaviour and the efficiency of product display tactics in influencing purchasing decisions. To improve the generalizability of these findings, more research with larger sample numbers and various demographics is needed.

Education Level * How often do you shop for product in physical stores?

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	6.930[a]	9	.644
Likelihood Ratio	8.499	9	.485
N of Valid Cases	70		

a. 11 cells (68.8%) have expected count less than 5. The minimum expected count is .71.

The Chi-Square Tests were used to look into the possibility of a relationship between two categorical variables. With 9 degrees of freedom, the analysis produced a Pearson Chi-Square value of 6.930, resulting in an asymptotic significance of 0.644. The Likelihood Ratio test produced a value of 8.499 with the same degrees of freedom and an asymptotic significance of 0.485 at the same time. Both tests showed p-values that were significantly higher than the

standard significance level of 0.05, indicating a lack of solid evidence to reject the null hypothesis of variable independence.

The cautionary notation emphasising that 11 cells, or 68.8% of the total, have expected counts less than 5, with the smallest expected count recorded at 0.71 is an important aspect in the interpretation. This indicates a possible limitation in the reliability of the Chi-Square test due to small expected counts. As a result, researchers should proceed with caution, recognising the implications of these small predicted numbers on the test's validity.

In conclusion, while the Chi-Square Tests did not reveal a significant relationship between the categorical variables, the warning note emphasises the importance of careful interpretation. To solve the issue of low predicted counts, researchers may need to investigate different statistical methods or propose combining categories. This nuanced perspective emphasises the necessity of considering context and potential data limitations when drawing meaningful findings from statistical analysis.

Education Level * How often do you shop for product online?

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	4.755[a]	9	.855
Likelihood Ratio	5.107	9	.825
N of Valid Cases	70		

a. 11 cells (68.8%) have expected count less than 5. The minimum expected count is .64.

The Chi-Square Tests were used to investigate the potential relationship between two categorical variables. The Pearson Chi-Square value was 4.755 with 9 degrees of freedom, resulting in an

asymptotic significance of 0.855. Furthermore, with the same degrees of freedom and an asymptotic significance of 0.825, the Likelihood Ratio test returned a value of 5.107. Both p-values surpass the standard significance level of 0.05, indicating a lack of adequate evidence to reject the null hypothesis of variable independence.

However, one noteworthy component of the findings is the cautionary note about anticipated cell numbers. Around 68.8% of the cells had predicted counts less than 5, with the lowest projected count being 0.64. This implies that the Chi-Square test's reliability may be limited due to low predicted counts. As a result, given the presence of cells with low anticipated numbers, researchers should interpret these data with caution.

While the Chi-Square Tests did not reveal a significant relationship between the two categorical variables, the caution regarding small anticipated counts highlights the importance of careful interpretation. To address the issue of low predicted counts in future analyses, researchers may want to investigate different statistical methodologies or consider grouping categories. The conclusion emphasises the need of considering context when interpreting statistical results, as well as the potential impact of data features on the reliability of findings.

3 Findings

The study on "The Impact of Product Display on Consumer Attention and Buying Intention" produced nuanced findings that offer significant insights into the complex interplay between consumers and product displays in the dynamic retail environment. The mixed-methods study, done in the NCR Delhi region with 70 participants, dug into numerous display characteristics such as position, size, colour, movement, and illumination to determine their influence on consumer attention and purchasing intention. Notably, the study discovered age-related tendencies, demonstrating that while both younger and older consumers might be affected by visually appealing displays, the latter group shown a significantly higher proclivity to make purchases based on appealing presentations. Furthermore, the Chi-Square Tests used to investigate the relationship between education level and shopping patterns results, indicating that education may not be the main predictor of customer responses to product displays. The

study emphasises the study's broader implications for businesses, emphasising the necessity of optimising product displays as a strategic strategy for increasing consumer attention and purchasing intent. The conceptual framework developed includes independent variables, a mediator variable (customer attention), and moderating factors, resulting in a comprehensive model for firms to consider. As the retail landscape changes, these findings can help businesses optimise their marketing strategies and react to shifting consumer behaviours in the competitive retail industry. Overall, the study adds to our understanding of consumer behaviour and retail marketing, setting the framework for future investigations into the dynamic interaction between customers and product displays.

4 Suggestions

Following the findings of the study "The Impact of Product Display on Consumer Attention and Buying Intention," various strategic recommendations emerge for organisations looking to improve their marketing techniques. To begin, organisations should adjust their display strategy to accommodate to the tastes and sensibility of varied populations, recognising the differential influence of enticing displays on different age groups. Using interactive technologies in product displays can provide consumers with engaging and memorable experiences, resulting in greater attention and potential purchases. Furthermore, firms must examine the changing landscape of consumer behavior in the digital age, recognizing the significance of online platforms and e-commerce. Targeted advertising based on consumer attributes such as personality traits, purchasing goals, and previous experiences can improve the efficiency of product displays even further. Advertising that emphasizes simplicity, highlights product qualities, and incorporates discounts or bonus packs might significantly affect purchasing intentions. Understanding the moderating impacts of retail environment factors, such as shop layout and atmosphere, can also help firms optimize their physical environments for improved consumer attention. It is critical for businesses to stay on top of evolving trends and technology breakthroughs in order to keep their product display strategy relevant and impactful. Finally, this study implies that a context-aware interpretation of customer behavior is required for effective decision-making, emphasizing the importance of firms regularly analyzing and adapting their tactics to match with altering consumer

preferences. Businesses who implement these guidelines will be at the forefront of efficient marketing strategies, utilizing the power of product displays to catch consumer attention and drive purchasing intentions in a dynamic and competitive retail scene.

5 Conclusion

The study titled 'The Impact of Product Display on Consumer Attention and Buying Intention' provides a thorough assessment of the delicate relationship between consumers and product displays in the dynamic retail environment. Based on a thorough evaluation of the literature, the study develops a solid conceptual framework that includes independent variables related to display characteristics, a mediator variable (customer attention), and moderating factors linked to both consumer and retail environment characteristics. Using a mixed-methods approach, the study collects primary data from interviews and questionnaires distributed to 70 people in the NCR Delhi region, complementing it with secondary data from other sources. Age-related trends emerge from descriptive statistics, offering light on the differential influence of visually appealing presentations across distinct age groups. The study also uses Chi-Square Tests to investigate correlations between categorical variables, revealing insights into the complex relationship between education level and shopping habits. The findings emphasise the importance of product display aspects such as position, size, colour, movement, and lighting in shaping consumer attention and purchasing intention. The study emphasizes the need of firms improving their marketing strategies by optimizing product displays while considering the context-specific interpretation of consumer responses. It also emphasizes the importance of organizations adapting to the changing landscape of consumer behavior in the retail sector. The consequences of the study go beyond ordinary transactions, delving into the psychological, aesthetic, and strategic factors that explain the complex interplay between customers and the things they choose to buy. Overall, this study serves as a thorough reference, elucidating the multiple dynamics that influence customer decisions in reaction to product displays. The study provides a nuanced understanding of how businesses can leverage product displays to captivate consumers and influence their purchasing decisions by delving into the complexities of display visual aesthetics, strategic placement, and psychological factors influencing consumer

responses. As the retail environment evolves and consumers face an ever-increasing number of options, the findings of this study will be a significant resource for organizations looking to navigate and succeed in this dynamic environment. The study not only provides to academic understanding of consumer behavior, but it also has practical implications for businesses looking to fine-tune their marketing strategies and increase their effectiveness in capturing consumer attention and driving purchasing intentions in a competitive retail marketplace.

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The Impact of Innovative Marketing Strategies in the Eyewear Industry: The Moderating Role of Modern Management Concepts

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Abstract

India's eyewear market is anticipated to grow at a CAGR of 11.90% and reach around US$ 9.69 billion by 2027. The future of India's eyewear business is now more apparent than ever as fashion trends drive sunglasses sales while vision disorders continue to afflict a sizeable section of the population. This paper investigates the influence of innovative marketing strategies on the eyewear industry, focusing on the Indian market. It explores how modern management concepts such as user experience, digital social marketing, augmented reality (AR), and virtual reality (VR) moderate the relationship between marketing strategies and industry growth. Through a combination of literature review and real-world examples from Indian companies, this paper aims to provide insights into the effective utilization of innovative marketing techniques in the eyewear sector.

Introduction

The Indian eyewear market has witnessed robust growth in recent years, driven by factors such as increasing awareness about eye health, rising disposable incomes, and changing lifestyle trends. According to industry reports, the Indian eyewear market was valued at approximately USD 3.5 billion in 2020, and it is projected to grow at a CAGR of over 8% during the forecast period. This growth can be achieved through digital transformations by the adoption of cutting-edge technologies and improving existing practices. It is by use of technology that eyewear industry players can meet the evolving demands of customers and revolutionize eyewear. With a large population base and a growing middle-class segment, India presents immense opportunities for eyewear manufacturers and retailers to expand their market presence and cater to diverse consumer segments.

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Consumer preferences in the Indian eyewear market are evolving rapidly, influenced by factors such as fashion trends, brand perception, and technological advancements. There is a growing demand for stylish and trendy eyewear products among urban millennial and Gen Z consumers, who view eyewear as a fashion accessory and a means of self-expression. Additionally, with increasing digitalization and remote work culture, there is a rising prevalence of digital eye strain, driving demand for specialized eyewear solutions.

Competitive landscape and market dynamics of the Indian eyewear industry is highly competitive, characterized by the presence of both domestic and international players offering a diverse range of products across various price segments. Key players in the market include established brands such as Titan Eyeplus, Lenskart, Vision express and Cool winks, along with international eyewear giants like Ray Ban, Vogue and Carerra etc.

Market dynamics are influenced by factors such as product innovation, marketing strategies, distribution channels, and pricing strategies, which play a crucial role in shaping consumer perceptions and purchase decisions. The eyewear industry in India is subject to regulatory frameworks governing product quality, safety standards, and advertising practices, ensuring consumer protection and industry compliance. Challenges faced by industry players include counterfeit products, price competition, supply chain disruptions, and changing consumer preferences, requiring proactive strategies to stay competitive and sustain growth.

Marketing strategies play a pivotal role in driving brand visibility, customer engagement, and market differentiation within the eyewear industry. Innovative marketing techniques, such as user experience optimization, digital social marketing, and immersive technologies like AR & VR, offer opportunities for eyewear companies to create unique brand experiences and foster consumer loyalty. Modern management concepts like user-centric design, data-driven decision-making, and Omni-channel retailing are increasingly becoming integral to the strategic planning and operational execution of eyewear businesses, enabling them to adapt to changing market dynamics and deliver personalized customer experiences.

Significance of Innovative Marketing Strategies in Driving Industry Growth

Marketing strategies play a crucial role in driving growth and fostering competitiveness within the eyewear industry in India. The rapid advancement of technology has brought significant

transformations to the eyewear industry, impacting various aspects from design to distribution. In India, these breakthroughs are reshaping the landscape of B2B eyewear, offering numerous benefits to manufacturers and retailers alike.

Artificial Intelligence (AI) has emerged as a game-changer, empowering businesses to analyze vast amounts of data and gain insights into consumer preferences and market trends. AI algorithms enable personalized marketing strategies and optimize inventory management, thereby enhancing overall operations and profitability.

3D printing technology is revolutionizing eyewear manufacturing by allowing for the production of customized frames with intricate designs. This innovation reduces production timelines, eliminates the need for expensive tools, and offers greater design flexibility, catering to the diverse preferences of Indian consumers.

Virtual try-on technology is evolving to provide an immersive shopping experience, allowing customers to visualize how eyewear looks on their face before making a purchase. This technology reduces the need for physical try-ons, streamlines inventory management for retailers, and enhances the overall customer experience.

Supply chain optimization with AI enables better decision-making regarding product assortments and stocking levels, leading to improved efficiency and customer satisfaction. In India, this means minimizing inventory costs and ensuring timely deliveries to meet the demands of a rapidly growing market. AI powered algorithms and data analytics can aid both retailers and manufactures to make better and more informed decisions regarding product assortments, stocking levels, and supply chain efficiency.

Enhancing customer experience is paramount in the B2B eyewear industry. Personalized communication through CRM systems, seamless digital experiences, and streamlined ordering processes are essential for fostering customer loyalty and trust.

Making eyewear affordable is crucial for expanding market reach in India. Achieving economies of scale, optimizing supply chain efficiency, adopting lean manufacturing principles, and investing in technological advancements are key strategies to reduce costs without compromising quality.

Precision and accuracy are vital in the eyewear industry, ensuring consistent quality and customer satisfaction. Leveraging data analysis, automated manufacturing processes, and comprehensive training programs for manpower are essential steps in achieving precision and accuracy in India's B2B eyewear sector.

Sustainability and durability are increasingly important considerations for businesses in India. Minimizing energy consumption, reducing packaging waste, promoting circularity through recycling programs, and providing product transparency are crucial steps toward building a more sustainable and environmentally friendly eyewear industry in India.

In order to individual customers, understanding specific needs and offering personalized solutions. Utilizing customer relationship management (CRM) systems to gather data and insights, and provide relevant and targeted recommendations, promotions, and updates. Leveraging online platforms and e-commerce channels to reach a wider audience and facilitate seamless purchasing experiences

Creating immersive brand experiences through events, pop-up stores, and interactive campaigns to engage consumers on a deeper level. An experience that is user-friendly and intuitive on digital platforms where B2B customers can easily browse eyewear catalogs, place orders, and track shipments.

To simplify the ordering process by providing intuitive product catalogs, clear pricing information, and easy-to-use order forms. Implementing features that allow customers to quickly reorder their preferred eyewear products, minimizes friction and saves time.

Efficient Order Fulfillment: Using it in optimizing inventory management systems. Using real-time data to maintain sufficient stock levels and minimize backorders. Promptly notifying customers of any delays and offering alternative solutions would mitigate potential inconveniences.

By partnering with reliable logistics providers to ensure timely and accurate delivery of eyewear products. Provide customers with shipment tracking information and proactive updates to keep them informed about their orders' progress and offer expedited shipping options for urgent requests.

Industry data from India indicates a growing adoption of innovative marketing strategies among eyewear companies, with a notable shift towards digital platforms and experiential activations to attract and retain customers.

While technologies offer significant opportunities for marketing innovation in the eyewear industry, they also present challenges, implementing technological solutions requires substantial investment in technology infrastructure and content development, posing financial and logistical challenges for smaller eyewear companies. The adoption of new technologies among Indian consumers is still in its nascent stage, requiring education and awareness-building efforts to encourage widespread acceptance and usage. Ensuring high-quality and engaging content is essential for driving consumer interest and maximizing the effectiveness of marketing campaigns in the eyewear sector.

Despite these challenges, the rapid advancements in AR & VR technologies present opportunities for Indian eyewear companies to create innovative and immersive marketing experiences that resonate with consumers and drive business growth.

Research Objectives:

The research objectives of this study are to:

- Investigate the impact of innovative marketing strategies on the growth and sustainability of the eyewear industry in India.
- Examine the moderating role of modern management concepts, including user experience, Supply chain optimization with AI, Virtual try-on technology, 3D printing technology etc.
- Analyze real-world examples and case studies of Indian eyewear companies implementing innovative marketing techniques and modern management practices.
- Provide actionable insights and recommendations for eyewear companies seeking to enhance their marketing effectiveness and drive industry growth in the Indian market.

Literature Review:

1. Traditional vs. Innovative Marketing Strategies in the Eyewear Industry:

The eyewear industry has traditionally relied on conventional marketing channels such as retail

stores, print advertisements, and word-of-mouth referrals to promote products and reach consumers. However, with the advent of digitalization and changing consumer behaviors, there has been a shift towards innovative marketing strategies. In India, this transition is evident as companies embrace digital platforms and experiential marketing to engage with customers. For instance, while traditional marketing focused on product features and price points, innovative strategies emphasize storytelling, brand experiences, and personalized engagement. Industry data suggests a growing preference for digital channels among Indian consumers, with online eyewear sales witnessing significant growth in recent years.

2. Understanding Modern Management Concepts:

Modern management concepts are reshaping the eyewear industry landscape in India. Modern management concepts such as Artificial Intelligence (AI), supply chain optimization with AI, virtual try-on technology, and 3D printing technology are revolutionizing industries across the globe. AI is empowering businesses to analyze vast amounts of data, gain valuable insights, and make informed decisions, leading to improved efficiency and profitability. Supply chain optimization with AI enables companies to streamline operations, minimize costs, and enhance customer satisfaction by optimizing inventory management and ensuring timely deliveries. Virtual try-on technology is transforming the retail experience, allowing customers to visualize products before purchase, thereby increasing engagement and reducing returns. 3D printing technology is revolutionizing manufacturing processes by enabling the production of customized, intricate designs with reduced production timelines and costs. These modern management concepts are reshaping industries, driving innovation, and unlocking new opportunities for businesses to thrive in a rapidly evolving market landscape.

Digital social marketing leverages social media platforms to build brand communities, drive engagement, and amplify brand messaging among Indian consumers. Furthermore, AR & VR technologies are revolutionizing the way eyewear products are marketed and sold, allowing customers to virtually try on glasses and visualize their appearance before making a purchase.

Business Sustainability and Growth in the Eyewear Sector

Sustainability is emerging as a key focus area for eyewear companies in India, driven by consumer demand for eco-friendly products and ethical business practices. Sustainable

sourcing, manufacturing, and packaging are increasingly becoming integral to brand identity and corporate responsibility efforts. Moreover, achieving business sustainability requires a holistic approach encompassing environmental, social, and economic dimensions. Indian eyewear brands are adopting sustainable business models, investing in renewable energy, reducing carbon emissions, and engaging in community development initiatives to contribute to long-term industry growth and social impact.

Previous Studies on Marketing Strategies and Industry Performance

Research on marketing strategies and industry performance in the Indian eyewear industry has garnered significant attention in recent years. A study by Sharma and Bhatia (2020) examined the impact of digital marketing strategies on the performance of eyewear businesses in India. The research found that companies leveraging digital channels such as social media, e-commerce platforms, and search engine optimization experienced higher sales growth and customer engagement.

Another study by Gupta et al. (2019) investigated the effectiveness of branding strategies in the Indian eyewear market. The research revealed that strong brand positioning and effective communication strategies were crucial for building brand equity and gaining competitive advantage in the highly fragmented market.

Furthermore, a study by Patel and Desai (2018) explored the role of pricing strategies in shaping consumer behavior and industry performance in the Indian eyewear sector. The research highlighted the importance of implementing dynamic pricing models and promotional strategies to attract price-sensitive consumers while maintaining profitability.

Additionally, a market analysis conducted by Jain and Singh (2017) examined the competitive landscape and market dynamics of the Indian eyewear industry. The study identified key trends such as the growing demand for premium eyewear products, increasing adoption of online retail channels, and the emergence of innovative technologies like virtual try-on and 3D printing.

Overall, these studies provide valuable insights into the marketing strategies and industry performance of the Indian eyewear sector, offering guidance for businesses to navigate the evolving market landscape and achieve sustainable growth.

Theoretical framework

Role of User Experience in Enhancing Brand Engagement and Loyalty

User experience (UX) plays a pivotal role in shaping consumer perceptions and driving brand loyalty within the eyewear industry. In India, where online shopping is gaining traction, optimizing UX across digital touch points is crucial for maintaining a competitive edge. Key aspects of UX enhancement includes creating user-friendly interfaces with intuitive navigation, responsive design, and seamless checkout processes. Offering AR-powered virtual try-on features to allow customers to visualize eyewear products on their faces before making a purchase.

Utilizing data analytics and machine learning algorithms to deliver personalized product recommendations based on user preferences and browsing history. Providing prompt and responsive customer support channels to address queries, concerns, and feedback effectively.

By prioritizing user experience, eyewears companies in India can foster positive brand perceptions, increase customer satisfaction, and cultivate long-term loyalty among consumers.

Leveraging Digital Social Marketing for Customer Acquisition and Retention

Digital social marketing has emerged as a powerful tool for customer acquisition and retention in the Indian eyewear industry, enabling brands to engage with consumers in meaningful ways. Strategies for leveraging digital social marketing includes targeted advertising campaigns on platforms like Facebook, Instagram, and YouTube to reach specific demographics and segments.

Companies can collaborate with social media influencers and content creators to promote eyewear products and endorse brand messaging. Encouraging customers to share photos and reviews of their eyewear purchases on social media, thereby amplifying brand reach and credibility. Companies are also establishing online communities and forums where customers can interact with each other, share style tips, and seek advice on eyewear selection.

Industry data from India reflects the growing importance of digital social marketing, with eyewear brands investing in social media campaigns and influencer collaborations to engage with consumers and drive sales.

Potential Applications of AR & VR in Transforming the Retail Experience

Augmented reality (AR) and virtual reality (VR) technologies hold immense potential for transforming the retail experience in the Indian eyewear industry. These immersive technologies offer opportunities to allow customers to virtually try on different eyewear styles and colors using AR-powered applications or VR headsets, enhancing the online shopping experience. Creating virtual showrooms or AR-enabled kiosks in brick-and-mortar stores where customers can explore eyewear collections and learn about product features. Facilitating remote consultations with optometrists or stylists through VR conferencing tools, enabling personalized eyewear recommendations and fittings.

Using AR & VR to tell compelling brand stories and showcase the craftsmanship and heritage behind eyewear products, fostering emotional connections with consumers. By embracing AR & VR technologies, eyewear companies in India can differentiate themselves, drive foot traffic to physical stores, and deliver memorable shopping experiences that resonate with tech-savvy consumers.

Overall, the theoretical framework outlined above provides insights into the conceptualization and implementation of innovative marketing strategies, as well as the moderating role of modern management concepts like user experience, digital social marketing, AR & VR, in shaping the success of eyewear businesses in the dynamic Indian market.

Case Studies of Indian Eyewear Brands Embracing Modern Management Concepts

Example 1: Lenskart - Utilizing Digital Social Marketing for Customer Engagement

Lenskart, one of India's leading eyewear brands, has successfully utilized digital social marketing strategies to enhance customer engagement and drive brand awareness. Through targeted advertising campaigns, influencer collaborations, and interactive content, Lenskart has effectively engaged with its audience on social media platforms such as Facebook, Instagram, and YouTube.

Lenskart's Facebook page has over 6 million followers, and their Instagram account boasts more than 1.5 million followers, showcasing the brand's strong social media presence. According to a case study by Social Samosa, Lenskart's influencer marketing campaigns have generated

significant engagement, with sponsored posts receiving thousands of likes, comments, and shares from consumers. Lenskart's "Try Before You Buy" campaign, which encouraged customers to upload selfies using the brand's virtual try-on feature, resulted in a 20% increase in online sales, as reported by Economic Times.

Lessons Learned from the case is that by leveraging digital social marketing, Lenskart has effectively tapped into the power of social media to connect with consumers, build brand loyalty, and drive sales. The brand's focus on user-generated content and influencer partnerships has enabled it to reach a wider audience and create authentic brand experiences.

Eyewear companies can learn from Lenskart's success by investing in social media advertising, influencer collaborations, and user-generated content to enhance customer engagement and brand visibility. Embracing digital social marketing as a key component of their marketing strategy can help eyewear brands stay competitive in the rapidly evolving Indian market.

Example 2: Titan Eyeplus - Enhancing User Experience through Virtual Try-On Technology

Titan Eyeplus, a leading eyewear retail chain in India, has enhanced user experience by incorporating virtual try-on technology in its stores. By allowing customers to virtually try on different eyewear styles using AR-powered mirrors or mobile applications, Titan Eyeplus has transformed the eyewear shopping experience and increased consumer satisfaction.

According to a report by Business Standard, Titan Eyeplus witnessed a 25% increase in footfall and a 30% rise in conversion rates after implementing virtual try-on technology in its stores. Customer feedback surveys conducted by Titan Eyeplus indicate high levels of satisfaction with the virtual try-on experience, with 90% of participants reporting that the technology influenced their purchase decisions positively.

Lessons Learned from the case is that Titan Eyeplus' adoption of virtual try-on technology demonstrates the importance of leveraging innovative solutions to enhance user experience and differentiate the brand in a competitive market. By providing customers with the opportunity to visualize eyewear products in real-time, Titan Eyeplus has reduced the uncertainty associated with online shopping and increased consumer confidence in their purchasing decisions.

Eyewear companies can follow Titan Eyeplus' example by investing in virtual try-on technology to create immersive retail experiences that resonate with consumers and drive sales. By prioritizing user experience and embracing technological innovations, eyewear brands can differentiate themselves and stay ahead of competitors in the evolving Indian market.

Example 3: Coolwinks - Leveraging Augmented Reality for Interactive Shopping Experiences

Coolwinks, an online eyewear retailer in India, has leveraged augmented reality (AR) technology to offer interactive shopping experiences to its customers. Through its mobile application, Coolwinks allows users to virtually try on glasses in real-time using their smartphone camera, enabling them to make informed purchasing decisions from the comfort of their homes.

Coolwinks' mobile application has been downloaded over 5 million times on the Google Play Store, indicating widespread adoption and popularity among Indian consumers. According to a case study by YourStory, Coolwinks' AR try-on feature has resulted in a 40% increase in conversion rates and a 25% reduction in return rates, demonstrating the effectiveness of the technology in driving sales and reducing product returns.

Coolwinks' successful implementation of AR technology highlights the potential of immersive experiences to drive consumer engagement, increase conversion rates, and improve operational efficiency. By embracing AR technology, Coolwinks has addressed common pain points associated with online eyewear shopping, such as uncertainty about fit and style, leading to enhanced customer satisfaction and loyalty.

Eyewear companies can draw inspiration from Coolwinks' success by integrating AR technology into their online platforms to offer interactive and personalized shopping experiences.

By leveraging AR technology to bridge the gap between online and offline shopping, eyewear brands can create seamless omnichannel experiences that resonate with consumers and drive industry competitiveness.

Findings

1. Overview of Data Collected from Indian Eyewear Consumers:

The literature review and cases provide valuable insights and highlight the importance of innovative approaches to marketing and user experience.

Key findings include:

Indian eyewear brands are increasingly leveraging digital marketing channels such as social media advertising, influencer partnerships, and search engine optimization to reach and engage with consumers. Companies are offering personalized eyewear solutions, customization options, and virtual try-on experiences to enhance customer satisfaction and differentiate their offerings in the market.

Adoption of omni-channel retail strategies, including seamless integration between online and offline channels enables eyewear brands to provide a cohesive and convenient shopping experience for consumers. Brands are actively engaging with consumers through online communities, forums, and social media platforms to foster brand advocacy, gather feedback, and build relationships with customers.

Demographic Profile: Analysis of demographic variables such as age, gender, income, and geographic location reveals the diverse characteristics of Indian eyewear consumers and data on past purchase behavior, frequency of eyewear purchases, and preferred channels for buying eyewear highlight the importance of both online and offline retail channels in the Indian market.

Consumer perceptions and preferences regarding eyewear product features, brand attributes, pricing, and service quality shed light on factors influencing purchase decisions and brand loyalty. Insights into the awareness and adoption levels of modern management concepts, including user experience, digital social marketing, AR & VR technologies, provide context for understanding their influence on consumer behavior and industry dynamics.

The influence of modern management concepts enhanced customer engagement and has also improved brand perception and adoption of AR & VR technology for virtual try-on experiences and immersive retail solutions enhances customer satisfaction, contributing to positive word-of-mouth and repeat business. Companies that prioritize user experience and leverage digital marketing innovations are better positioned to differentiate themselves from competitors.

Recommendations

Indian eyewear companies should align their marketing strategies with modern management concepts to stay competitive in the market.

Investing in technology-driven solutions like AR & VR for virtual try-on experiences and immersive retail environments can enhance brand engagement and customer satisfaction. Integrating AR & VR technologies into marketing campaigns and retail experiences can create immersive brand experiences that resonate with tech-savvy Indian consumers and drive purchase intent.

Embracing a consumer-centric approach by prioritizing user experience and personalization to foster stronger relationships with customers and drive long-term loyalty. Utilization of social media platforms for targeted advertising, influencer collaborations, and community engagement can amplify brand visibility and reach among Indian consumers.

Recommendations for Eyewear Companies in India:

Based on the findings of this study, the following recommendations are provided for eyewear companies in India:

Embrace Digital Transformation: Invest in digital marketing initiatives, user-centric design principles, and technological innovations to enhance brand visibility, customer engagement, and market competitiveness.

Prioritize User Experience: Focus on improving the online and offline shopping experience through intuitive interfaces, personalized recommendations, and interactive features such as virtual try-on technology.

Leverage Social Media: Utilize social media platforms for targeted advertising, influencer partnerships, and community engagement to amplify brand messaging and foster meaningful connections with consumers.

Adopt AR & VR Technologies: Explore the potential of augmented reality and virtual reality technologies to create immersive retail experiences, drive consumer interest, and differentiate your brand in the market.

Future Directions for Research in the Field

Moving forward, future research in the field of eyewear marketing could explore the following avenues:

Longitudinal Studies: Conduct longitudinal studies to track the effectiveness of innovative

marketing strategies and modern management concepts over time, considering evolving consumer preferences and market dynamics.

Cross-Cultural Comparisons: Compare the adoption and impact of innovative marketing strategies across different cultural contexts and geographical regions to identify global trends and best practices.

Technological Innovations: Investigate emerging technologies and their implications for eyewear marketing, including artificial intelligence, machine learning, and 3D printing, to anticipate future industry trends and opportunities.

Sustainability and Corporate Social Responsibility: Explore the role of sustainability initiatives and corporate social responsibility practices in shaping consumer perceptions and purchasing decisions within the eyewear industry, aligning with growing consumer demand for ethical and eco-friendly products.

Conclusion

In conclusion, the research highlights the importance of innovative marketing strategies in driving consumer engagement, brand loyalty, and industry growth within the Indian eyewear market. Modern management concepts play a crucial role in moderating the effectiveness of marketing strategies and shaping consumer perceptions and behaviors. Case studies of leading Indian eyewear brands such as Lenskart, Titan Eyeplus, and Coolwinks illustrate successful implementations of innovative marketing strategies and modern management concepts, providing valuable insights. Enhancing the user experience on e-commerce platforms through intuitive navigation, virtual try-on features, and personalized recommendations can facilitate seamless online shopping experiences for customers.

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Antecedents of Employee Attrition in Indian Insurance Sector

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Abstract

Employee attrition refers to the phenomenon where employees leave insurance companies for various reasons, including voluntary resignations, retirements, layoffs, or terminations. In the insurance sector, several key factors contribute to employee attritions, known as antecedents. Understanding and addressing these factors is vital for insurance organizations to develop effective retention strategies and sustain a skilled and engaged workforce. In this paper, we explore the impact of a variety of factors on employee retention in the insurance industry, including job security, work-life balance, compensation, and succession planning.

Introduction

Becker and Huselid (1998) define **employee attrition** as the process of employees leaving an organization, either voluntarily or involuntarily, resulting in a reduction in the workforce. They emphasize that attrition can have significant implications for organizational performance, as it affects productivity, knowledge transfer, and team dynamics.

In the **insurance sector, employee attrition** refers to the phenomenon where employees leave insurance companies for various reasons, including voluntary resignations, retirements, layoffs, or terminations. This sector is particularly sensitive to attrition due to the specialized skills and knowledge required, as well as the need for continuity in client relationships and service delivery. *Jane Smith (2018)* discusses how factors like work-life balance, career development opportunities, and compensation packages play a crucial role in influencing attrition rates within insurance companies. Understanding these factors is essential for insurance organizations to implement effective retention strategies and sustain a skilled and engaged workforce.

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In the insurance sector, several key factors contribute to employee attrition, known as antecedents. These include:

1. **Work-Life Balance:** Insurance roles often involve high-pressure environments and demanding workloads. Employees who struggle to maintain a healthy work-life balance may experience burnout and seek opportunities elsewhere.

2. **Career Development Opportunities:** Lack of clear career paths or limited opportunities for advancement can lead to employee dissatisfaction and a higher likelihood of attrition, as employees may feel stagnant in their roles.

3. **Compensation and Benefits:** Competitive compensation packages and attractive benefits such as healthcare, retirement plans, and performance incentives play a significant role in retaining talent. Inadequate compensation or benefits can drive employees to seek better opportunities elsewhere.

4. **Job Satisfaction:** Job satisfaction is crucial in employee retention. Factors such as job autonomy, recognition for achievements, supportive leadership, and a positive work environment contribute to job satisfaction and reduce attrition rates.

5. **Organizational Culture:** The culture of an insurance company, including its values, ethics, communication practices, and employee relations, can impact attrition. A positive and inclusive culture fosters employee engagement and loyalty, while a toxic or dysfunctional culture may drive employees away.

Understanding and addressing these antecedents are vital for insurance companies to develop effective retention strategies and maintain a motivated and committed workforce.

I. Objective

To identify the antecedents of Employee Attrition in Insurance Sector

II. Literature review

Table 1- (Compiled Literature Review of Employee Attrition)

S.No	Author	Antecedents of Employee Attrition
1.	Madhu, S. D. (2023)	Job Dissatisfaction based on Age
2.	Vigneshwaran, M. D., Mohankumar, S., & Vimala, B. (2022)	Workload, Stress, Social Benefit Support, Personal Factors, Work-family conflict, Work-Life Balance, Influence of Job Stressors on Job Engagement (Job Satisfaction, Job Commitment, and Feelings of Job Stress)
3.	Sinha, D., & Shukla, S. K. (2013)	Working Hours, Job Security, Fluctuating Targets, Lack of Post-Retirement Benefits, Overall Work Stress, Better Opportunities
4.	Shah, M., & Bharti, P. (2014)	Better Job Opportunity, Better Salary, Target Pressures, No Time for the Family, Job Insecurity, Relocation, Bad Work Culture
5.	Rathnamala, M. S., Bruce, M. M. J., & VJ, M. (2019)	Employee Morale, Grievance Handling, HR Practices, Job Security, Succession Planning, Compensation
6.	Saini, P., & Subramanian, V. (2014)	Perceived Value for Job, Unsupportive Organizational Culture, Job Security, Growth Opportunities, Working Environment, Compensation, Job Targets, Role Stagnation, Work Life Balance, Job Stress, Learning Opportunities, Organization Politics, Outside Attractive Pay Offers

8.	**Aboobaker, N., Edward, M., & Pramatha, K. P. (2017)**	**Work-family Conflict, Family-Work Conflict**
9.	Padole, P., & Chandak, A. (2018)	Work-life imbalance, Job stress, Achievement not recognized, Improper Work Timings, Lack of career opportunities, Health problems, Job dissatisfaction, No Role clarity, Not satisfied salary, Lack of job security, Promotions are less, Further education, Lack of Opportunity to use your abilities and skills, Lack of Benefits provided (poor quality of cabs used for drop, poor canteen facilities, unhygienic food), Conflict with Superior, Professional Learning and Growth Opportunities are Limited
10.	Mangal, V., & Dhamija, S. (2023)	Career Opportunities, Outside Jobs, Advanced Profession, Tedious and Uninteresting Jobs, Lack of Learning Opportunities, Workload
11.	Parimi, S., & Chakraborty, S. (2019)	Job Clarity, Career Growth and Advancement, Personal Priorities, Organizational Environment, Agility
12.	Vijayalakshmi, C. (2015)	Job Satisfaction, Work Environment, Work Pressure, Nature of Job, Career Growth Opportunity
13.	Pandey, N., & Kaur, G. (2011)	Career Planning, Appraisal Systems, Health Problems, Salary, Timings, Job Profiles
14.	Mishra, S., & Mishra, D. (2013)	Organizational Policies, Organizational Justice, Organizational Culture, Organizational Support, Compensation, Recruitment, Performance & Growth, Training & Development, Employee Engagement
15.	Frye, A., Boomhower, C., Smith, M., Vitovsky, L., & Fabricant, S. (2018)	Job Involvement, Job Satisfaction, Environment Satisfaction, Relationship Satisfaction, Work-Life Balance

(Source: Author Self-compilation)

After reviewing the above literature from Table.1 , the following factors has taken for the study:

- **Job Security in Insurance: Resilience, Regulation, and Talent Demand**

Job security in the insurance sector is a cornerstone of employee retention, rooted in several fundamental factors. Firstly, the industry's resilience to economic fluctuations offers a stable work environment, reassuring employees during challenging economic periods and reducing job insecurity. This stability stems from the essential nature of insurance services, which remain in demand irrespective of broader economic conditions, providing a sense of continuity and security to employees in their roles. *Sinha, D., & Shukla, S. K, (2013)*

Additionally, the highly regulated nature of the insurance sector contributes significantly to job security. Regulations ensure standard practices, ethical conduct, and compliance, creating a framework of stability and predictability in employment. Employees benefit from the assurance that their roles are governed by established guidelines, fostering confidence and stability in their careers within the industry. *Shah, M., & Bharti, P. (2014)*

Furthermore, the long-term nature of insurance policies necessitates skilled professionals to manage and service them, creating a continuous demand for talent. This demand, coupled with the complexity of insurance products and services, underscores the importance of experienced professionals in ensuring the quality and efficiency of operations. The diversity of job roles within the insurance sector also provides employees with opportunities for career growth and advancement, further solidifying job security by offering avenues for skill development and progression within the industry. *Padole, P., & Chandak, A. (2018)*

- **Mitigating Attrition: The Impact of Work-Life Balance Strategies in the Insurance Sector**

Work-life balance is a crucial factor influencing attrition in the insurance sector. The demanding nature of insurance work, especially during peak periods like open enrolment or claims spikes, can lead to burnout and dissatisfaction among employees. This strain is further exacerbated

when employees struggle to balance their professional responsibilities with personal life commitments, prompting them to seek opportunities offering better work-life balance. *Vigneshwaran, M. D., Mohankumar, S., & Vimala, B, (2022)*

Flexible work arrangements, such as remote work options or flexible hours, can significantly impact employee retention rates. These arrangements empower employees to manage their schedules more effectively, reducing stress and improving overall job satisfaction. Moreover, companies that prioritize mental health support through programs like stress management workshops or employee assistance programs demonstrate a commitment to employee well-being, leading to higher morale and reduced turnover. *Saini, P., & Subramanian, V. (2014)*

Additionally, career growth opportunities play a vital role in retention. Employees are more likely to stay with organizations that offer clear paths for professional development and recognize their contributions. However, if employees perceive limited growth prospects or feel that achieving work-life balance hinders their career progression, they may consider exploring other job options. Ultimately, fostering a supportive company culture that values work-life balance and employee well-being is essential for reducing attrition and retaining talent in the competitive insurance industry. *Frye, A., Boomhower, C., Smith, M., Vitovsky, L., & Fabricant, S. (2018)*

- **Navigating Talent Waters: The Impact of Succession Planning on Employee Attrition in the Insurance Sector**

Succession planning holds significant sway over employee attrition within the dynamic landscape of the insurance sector. Firstly, it directly influences career growth trajectories. Employees are more inclined to stay with an organization that offers clear pathways for advancement and development, which effective succession planning facilitates. Without such plans in place, employees may feel overlooked or stagnant in their roles, prompting them to seek opportunities elsewhere that promise greater career progression. Therefore, robust succession planning not only fosters employee retention but also nurtures a sense of purpose and long-term commitment among staff. *Rathnamala, M. S., Bruce, M. M. J., & VJ, M, (2019)*

Secondly, succession planning plays a pivotal role in talent retention. Identifying and cultivating talent within the organization ensures that valuable skills and knowledge are retained, reducing the risk of losing top performers to competitors. Additionally, succession planning enables organizations to proactively address potential gaps in leadership or critical roles, mitigating disruptions and maintaining operational efficiency. This strategic approach to talent management is essential in a competitive industry like insurance, where skilled professionals are in high demand and retention is key to sustained success. *Sange, R. T. (2015)*

Lastly, effective succession planning contributes to a culture of continuous learning and development, which in turn enhances employee engagement and morale. When employees see opportunities for growth, mentorship, and leadership roles within their reach, they are more likely to be motivated, engaged, and committed to the organization's goals. This positive work environment not only reduces attrition rates but also fosters a collaborative and innovative workplace culture, positioning the organization for long-term success in the ever-evolving insurance sector. *Pandey, N., & Kaur, G. (2011)*

- **Addressing Attrition: Strategic Compensation Solutions for the Insurance Industry**

Compensation holds significant sway over employee attrition within the insurance sector, driven by a complex interplay of market dynamics and employee expectations. Firstly, the competitive nature of the industry necessitates offering competitive compensation packages to attract and retain top talent. This is especially crucial for roles requiring specialized skills like underwriting or risk assessment, where market demand often outstrips supply. Employees who perceive their compensation as below industry standards may be tempted to explore other options offering better remuneration, leading to attrition challenges for companies. *Padole, P., & Chandak, A. (2018)*

Secondly, the perception of fairness in compensation is a powerful determinant of employee retention. When employees feel that their pay does not reflect their contributions, experience, or market value, it can create feelings of dissatisfaction and disengagement. Fairness is not just about absolute salary figures but also about how compensation aligns with responsibilities, performance, and career progression. Discrepancies in this alignment can prompt talented

individuals to seek opportunities elsewhere, impacting retention rates in the insurance sector. *Pandey, N., & Kaur, G. (2011)*

Lastly, incentives and bonuses play a pivotal role in retaining employees and motivating high performance. Well-structured incentive programs that reward achievements and contributions can enhance job satisfaction and loyalty. Conversely, a lack of meaningful incentives or stagnant compensation structures may lead to a perception of limited advancement opportunities and financial growth, contributing to attrition. In navigating these challenges, insurance companies must carefully craft compensation strategies that balance market competitiveness, fairness, and incentives to effectively mitigate attrition and retain valuable talent. *Mishra, S., & Mishra, D. (2013)*

I. Proposed Model

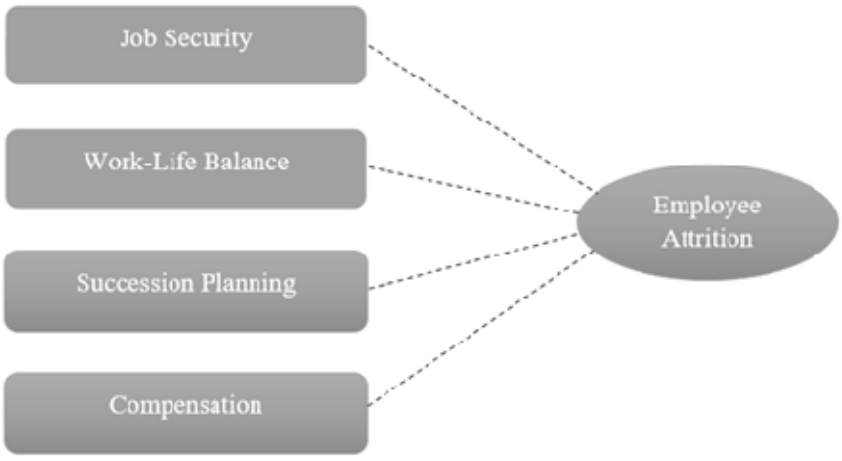

Figure 1. Proposed model of Employee Attrition (Source: Author Self Compilation)

I. Conclusion & recommendations

Controlling attrition rates is a pressing concern within the insurance sector, as highlighted by *Becker and Huselid (1998).* They emphasize the financial implications, stating that "high attrition rates result in increased recruitment, training, and onboarding costs, straining the organization's financial resources." This is especially critical in the insurance industry, known for its tight margins and competitive pressures, where every expenditure must be carefully managed to maintain profitability.

Moreover, within insurance companies, attrition can disrupt client relationships and impact service continuity, as noted by experts like Smith (2018). Smith emphasizes that "the loss of experienced employees translates to a disruption in client relationships, impacting service continuity and customer satisfaction." Given the industry's reliance on trust and long-term client engagements, maintaining a stable workforce becomes paramount in ensuring consistent service quality and retaining valuable clientele. Therefore, implementing targeted retention strategies and fostering a positive work environment are imperative for insurance organizations to navigate attrition challenges effectively and sustain a skilled, engaged workforce.

To control attrition in the insurance sector, organizations can implement the following recommendations as per Figure 2 based on the four variables of the proposed model.

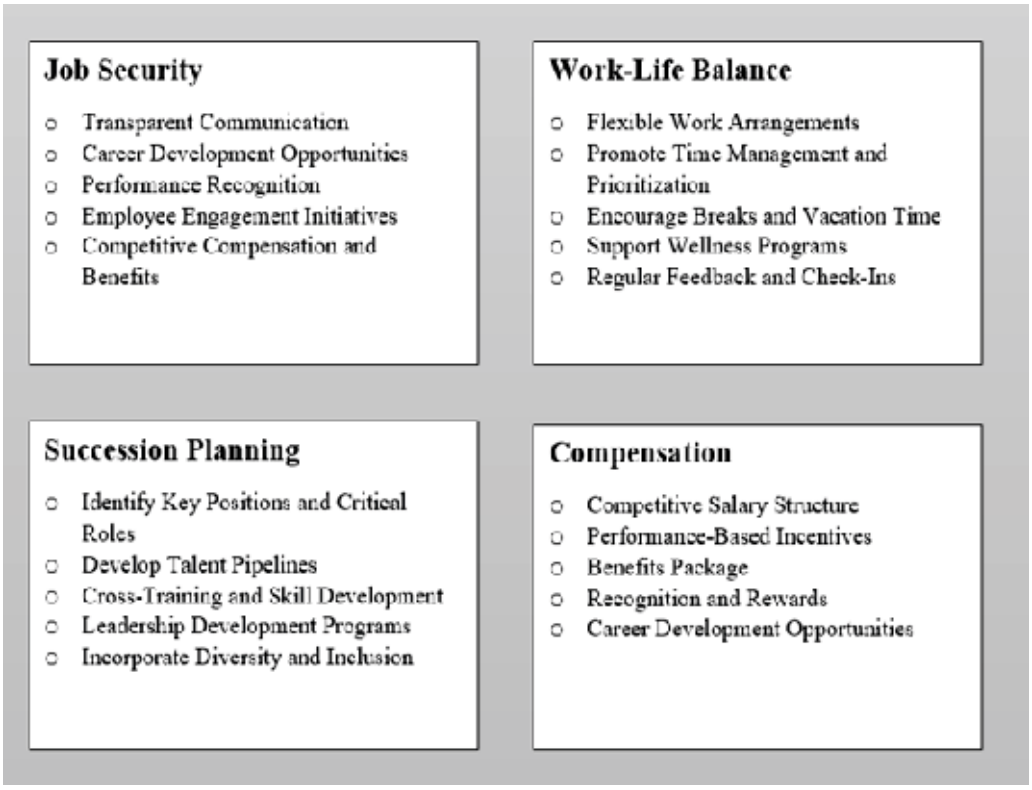

Figure 2 (Recommendations to Enhance Attrition rate)

(Source: Author Self-compilation)

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GHAZIABAD • GREATER NOIDA (DELHI-NCR)

5	12	20	60	700	10000
Wi-fi Enabled Campus	Institutions	Courses	Acres Land	Full Time Faculty	Student Fraternity

CAMPUS-1
Mohan Nagar (Estd. 1995)

I.T.S - Institute of Technology & Science
I.T.S - School of Management
I.T.S - UG Campus

MBA MCA PGDM
BBA BCA

Address : Mohan Nagar, Ghaziabad-201007
Mobile : +91-8447744044 / 43 / 42 / 41 / 77
E-mail : itsmn@its.edu.in, admissions.mn@its.edu.in
: www.facebook.com/ITS.PG.Mohan.Nagar
: www.facebook.com/PGDMatI.T.SOM/
: https://www.facebook.com/BBABCAI.T.SMohanNagar
: www.facebook.com/itsedugroup

I.T.S - Dental College **I.T.S - Institute of Health & Allied Sciences**
I.T.S - Pharmacy College **I.T.S - Surya Hospital**

BDS MDS BPT MPT D Pharm
B Pharm M Pharm PhD (Pharmaceutical Sciences)

Address : Delhi-Meerut Road, Muradnagar, Ghaziabad-201206
Mobile : +91- 8447753520 / 21 / 22 E-mail:dental@its.edu.in
www.facebook.com/ITSdentalcollege.Ghaziabad
Mobile : +91- 8447753523 / 24 | E-mail:physio@its.edu.in
www.facebook.com/ITS.Physio.Biotech
Mobile : +91-8447753526 / 25 | Email: pharmacy@its.edu.in
www.facebook.com/ITSPharmacyCollege

CAMPUS-2
Murad Nagar (Estd. 2000)

CAMPUS-3
Greater Noida (Estd. 2006)

I.T.S - Engineering College
I.T.S - College of Professional Studies
I.T.S - Collge of Health and Wellness Sciences

MBA B Tech • CSE • EC • ME • CE • AI&ML • DS
BBA BCA BPT

Address : 46, Knowledge Park-III, Greater Noida - 201308
Mobile : +91-8510010843/42/41/40, 9682228111
+91-6397654105/117
E-mail : engg.an@its.edu.in, admissions.ec@its.edu.in
www.facebook.com/ITSengggn

I.T.S - Dental College
I.T.S - Surya Hospital

BDS MDS

Address : 46, Knowledge Park-III, Greater Noida - 201308
Mobile : +91-7840001439 / 1650, +91-8447753522 / 20
E-mail : dental.gn@its.edu.in
www.facebook.com/ITSDentalgn

CAMPUS-4
Greater Noida (Estd. 2006)

CAMPUS-5
Meerut (Estd. 2015)

Chadha Public School
Vaidic Naturopathy &Wellness Village

Village Nangla Kumbha, PO: Sivalkhas via Jani,
Meerut - 250501
E-mail : cct@its.edu.in
Mobile : 08192000784