

JAGRAN JOURNAL OF MANAGEMENT AND TECHNOLOGY

ANNUAL PEER REVIEWED JOURNAL

VOLUME 6

ANNUAL SUB. : Rs. 500

AUGUST 2024

ISSN. 2583-293X



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JAGRAN JOURNAL OF MANAGEMENT AND TECHNOLOGY

• Volume 6 • August 2024

Registered with the Registrar of Newspapers of India Number UPENG/2019/78204

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Jagran Institute of Management

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Printed at

Solar Press

96/2, Chunniganj, Kanpur (U.P.) - 208 001

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Values and Personality Types of Market Mavens and Opinion Leaders in the E-World

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Abstract

We argue that Mavens need to give respectively feeling, thinking and tailor made messages to customers whose personalities are sensing-feeling and agreeable type, thinking and systematic and intuitive and openness to experience types of personality. We argue that Mavens with ambidextrous personalities can cater to all three segments above whereas non-ambidextrous Mavens need to focus on any one of these. Societies with Low Power Distance, Low Uncertainty Avoidance (hence High Adhocracy), High Indulgence, Low Bureaucracy, High Professional, High Market culture(s) are conducive for the emergence of market mavens. Mavens have strong ‘theoretical’ and ‘social’ value. In advertising in social media one needs to focus both on maven and opinion leaders; and firms with ‘differentiation’ strategy need to have more ‘opinion leaders’ in their seeding strategy.

Key Words

Personality of Mavens, Culture that Encourages Mavens, Strategy of Firm and Type of Mavens

1. Introduction

In an old HBR article (Guth and Tagiuri, 1965) six ‘values’ are listed and these are theoretical, money, power, social, religious and aesthetic. For a more complete list see the appropriate link in Google. It has long been known that these drive the corporate strategy. In this paper we try to find out the values of market mavens. MBTI personality scale (look up appropriate link in Google) following are considered: extraversion/introversion, sensing/intuition (in terms of data processing), thinking/feeling (in terms of data processing) and judgemental/perceptive. In personality literature important dimensions are provided by BiG-Five factor of personality, and these are extroversion/introversion, agreeable, open to experience, systematic and Neurotic. Here we try to decipher the personality of market maven (see Wiki on personality: MBTI and

BiG-5). Next we identify societal cultures where market mavens flourish. We also give important hypotheses related to viral marketing. For latest literature on market mavens, consumer switching, personality and culture refer to five articles by Sharma and Sharma (2018, 2019 and 2020).

2. Theoretical Framework

Personality types are briefly described in introduction above. Market mavens (see Wiki on market mavens) gather information about products in the market place; and consumers come and take their advice before product purchase. Given their value, many companies keep their own market mavens in the social media platforms so that they can give information that will clinch the deal in favour of their products.

Many consumers seek to be included in the group for the sake of ‘togetherness’ (and hence be agreeable) and would accept harsh treatment just for the sake of not contradicting others. Some consumers go by thinking process to make their decisions. Hence we have the following.

(H1): To be effective, market maven needs to give tailor made messages that are of ‘feeling’ type to consumers who have Sensing-Feeling (MBTI) and/or Agreeable (BiG-Five) type of personality.

(H2): To be effective, market maven needs to give tailor made messages that are of ‘thinking’ type to consumers who have Sensing-Thinking and Systematic type of personality.

(H3): To be effective, market maven needs to give tailor made advice to consumer who buys ‘innovative products’ and has Intuitive-Thinking, Intuitive-Feeling and Openness to Experience type of personality.

The concept of ‘ambidextrous’ personality is not yet developed in literature. Authorities argue that a person cannot naturally be an extrovert and also an introvert. This has been traced to genetic predisposition. It has been documented that person who is introvert experiences stress when he starts talking too much like an extrovert. Still some persons believe that one person can exhibit many types of behaviour. However management scientists argue that managers in organizations make decisions under stressful conditions and here there his ‘basic’ personality that is determined by his genetic disposition comes out in the open. Probably maven does not give advice to consumers under stressful conditions, and hence, multiple behaviour is possible for him. Hence we have the following.

(H4 (a)): Market maven has to have ‘ambidextrous’ personality so that he can attend to all three types of persons (feeling or thinking oriented persons and as well as consumers who are ‘early adopters’ of the innovative products) with equal ease (assuming that he is NOT under undue stress).

(H4 (b)): For mavens who are not ‘ambidextrous’ may focus on either following of appropriate personalities (as suggested by H1, H2 and H3) but not all.

(H5 (a)): If a market maven decides to focus on followers with sensing-feeling and agreeable personalities then he needs to have personality that is of the type Sensing-Feeling and/or Intuitive-Feeling.

(H5 (b)): If a market maven decides to focus on followers with sensing-thinking and conscientiousness personalities then he needs to have personality that is of the type Sensing-Thinking. Intuitive-Thinking and/or Openness to Experience.

If one combines Hofstede's and Cameroon and Quinn culture types following cultural dimensions result. Power Distance, Uncertainty avoidance, individuality and collectivism, short/long term, masculinity/feminism, bureaucracy, professional, person support, market and adhocracy. Below we identify those national cultures where maven can flourish (see Wiki on Culture).

(H6): In societies with Low Power Distance, Low Uncertainty Avoidance (hence High Adhocracy), High Indulgence, Low Bureaucracy, High Professional, High Market culture(s) are conducive for the emergence of market mavens.

Market maven loves to get as much information as possible about products in a given industry and compare these. Here maven is required to have analytical skills. He needs to understand the dynamics of social interaction as his advice is offered to general public. Hence we have the following.

(H7): Market Mavens have high 'theoretical' value.

(H8): Market Mavens will have high 'social' value.

Market maven gives information to customers and opinion leader has the ability to influence the purchase behaviour of consumers. Each one of them (maven and opinion leader) has his own following on the social media. Pay paying them a fee, they would beam their messages to their followers and thus help a message go 'viral'. Hence we have the following.

(H9): Message from market maven appeals to 'cognition' and 'emotion' of consumers and followers.

(H10): Message from opinion leader will appeal to your 'Cognition', 'Feeling' and 'Behaviour'.

(H11): Message from close friend (reference group: see wiki pages on word of mouth) appeals to your cognition, feeling and/or action.

In Viral marketing, mavens/opinion leaders need to be careful; it may tarnish their image if they participate in their viral marketing for a product that is not up to the mark.

If opinion leaders are few or are more expensive, then one has to go by market mavens; hence we have the following.

(H12): Seeding strategy has to be mixed; both market maven and opinion leaders are to be included in viral marketing program (so that we get the benefits for both aspects as given in H9 and H10).

ME Porter (1980) has identified strategy types: cost leader, differentiation and niche; whereas Miles and Snow et. al have identified the following strategy types: defender, prospectors, analysers and reactors. Cost leaders give value for money products to vast ocean of have not's, and they are willing to wait for the product to come. Hence they do not require the aura of opinion leaders, and hence following easily follows.

(H13): To be effective, seeding strategy in cost leaders is to include many market mavens and include few opinion leaders.

(H14): To be effective, seeding strategy: In differentiators/innovators to include many opinion leaders and few market mavens.

Four different analytics are listed: descriptive (when uncertainty is very high), diagnostic (when uncertainty is moderately high), predictive (when uncertainty is low) and prescriptive (when uncertainty is very low). In literature it is known that cost leaders need predictive/prescriptive analytics, whereas differentiators/innovators require descriptive/diagnostic analytics (see Wiki pages on Analytics).

(H15): Analytics for Price Maven is Predictive/Prescriptive and Analytics for Product Maven is Descriptive/Diagnostic.

3. Conclusions

In this paper we give several interesting propositions about market mavens. These have significant implications for marketers. We are in the process of data collection, and will report these as soon as possible.

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Integrating Sustainability into Startup Strategies: An Analysis of Challenges and Opportunities

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Abstract

This paper explores the importance of sustainable business strategies for startups, emphasizing the unique challenges and opportunities they face. Through a comprehensive literature review, analysis of case studies, and qualitative research, the study identifies key obstacles such as financial constraints, lack of expertise, and market competition. It also highlights opportunities for innovation, market access, and governmental support. The findings offer insights for startups founders and policymakers, providing actionable recommendations to foster sustainability in the startups ecosystem. This paper further explores the sustainable business strategies that startups can adopt to achieve long-term success while addressing environmental, social, and economic challenges. It examines the unique challenges startups face in implementing these strategies and identifies opportunities for growth and innovation.

Keywords- sustainable business, startups, literature review, innovation, economic challenges.

1- Introduction

Sustainability has become a critical aspect of modern business strategies, driven by increasing environmental concerns, regulatory requirements, and consumer preferences for eco-friendly products and services. For startups, assimilating sustainability into their business models can offer substantial competitive advantages and long-term feasibility. This paper examines the concept of sustainable business strategies, the relevance of sustainability for startups, and the primary objectives of this research. The importance of sustainability in business has grown significantly over the past few decades. Startups, characterized by their innovative approaches and agile nature, have the potential to lead the way in sustainable business practices. However, they face unique challenges due to limited resources and market pressure. This paper aims to provide a comprehensive analysis of sustainable business strategies for startups, highlighting both the obstacles they encounter and the opportunities available to them. The world is facing unparalleled environmental and social encounters. Consumers are increasingly demanding products and services from businesses that prioritize sustainability. Startups, with their swiftness and innovative essence, are well-positioned to lead the responsibility towards a more sustainable future.

2- Challenges of Sustainable Business Strategies for Startups:

- i. **Limited Resources:** Startups often have limited financial and human resources, making it challenging to invest in sustainable practices that may require upfront costs.
- ii. **Lack of Awareness:** Founders may not have a strong understanding of sustainability principles or the potential reimbursements of integrating them into their business.
- iii. **Supply Chain Complexity:** Managing a sustainable supply chain can be challenging, especially for startups with limited mechanism over their suppliers' practices.
- iv. **Consumer Perception:** While consumer demand for sustainable products is growing, there can be a detachment between willingness to pay and actual purchasing behaviour.
- v. **Financial Constraints:** Startups typically operate with limited budgets, making it challenging to invest in sustainable technologies and practices.
- vi. **Lack of Expertise:** Many startups lack the knowledge and experience needed to implement sustainable practices effectively.
- vii. **Market Pressure:** The need to quickly achieve profitability can push startups to prioritize short-term gains over long-term sustainability.
- viii. **Regulatory Barriers:** Navigating the regulatory landscape can be particularly challenging for startups aiming to implement sustainable practices.

3- Opportunities of Sustainable Business Strategies for Startups:-

- i. **Competitive Advantage:** By embracing sustainability, startups can differentiate themselves from competitors and attract a growing segment of eco-conscious consumers.
- ii. **Cost Reduction:** Sustainable practices can lead to cost savings through resource efficiency, reduced waste, and improved energy management.
- iii. **Innovation:** Sustainability can be a chauffeur of innovation, leading to the development of new products, amenities, and business models.
- iv. **Talent Attraction:** Millennial and Gen Z employees are more likely to be attracted to and engaged with companies that prioritize sustainability.
- v. **Innovation:** Startups have the agility to innovate and develop new, sustainable products and service.
- vi. **Market Differentiation:** Sustainability can be a key differentiator, attracting environmentally and socially conscious consumers.
- vii. **Investment:** There is a growing interest among investors in funding sustainable ventures.
- viii. **Partnerships:** Collaborations with established companies and NGOs can provide startups with resources and expertise.

4- Key Strategies for Sustainable Startups:-

- i. **Embed Sustainability in the Business Model:** Sustainability should be a core principle woven into the startup's mission, vision, and value proposition.
- ii. **Articulate Clear Sustainability Goals:** Set measurable goals that align with the startup's overall business objectives and track progress towards achieving them.
- iii. **Implement Sustainable Practices:** Integrate sustainability across all aspects of the business, from sourcing materials to product design, manufacturing, operations, and logistics.
- iv. **Engage Stakeholders:** Communicate the startup's sustainability efforts to employees, customers, investors, and other stakeholders to build trust and transparency.
- v. **Measure and Report Progress:** Develop a system to measure the impact of sustainability initiatives and regularly report progress on these metrics.
- vi. **Collaborate:** Partner with other organizations, NGOs, or academic institutions to share knowledge, resources, and best practices.

Sustainable strategically datafor Startup Growth and Profits over the years.



Fig No.01 (Source- <https://entrackr.com/2023>)

5- Literature Review:-

A long-term plan's basis is built on context and driving elements. Long-term strategy growth is influenced by a variety of practical circumstances and occurrences. This helps to provide the environment. It also inspires firms to develop new sustainable strategies in order for sustainable strategies to thrive. The company's external and systematic appearances are considered first, followed by concerns that affect internal tractability. The global

consumerist economy and inclusive markets are to thought-provoking a number of challenges in terms of stabilization, including rising inequality, harsh employee practices, and environmental trepidations. They also serve as the foundation for the long-term strategy's success. Increased cost-effective activity and corresponding consumption levels, for example, have a clear environmental impact.

i. **Cohen and Winn (2007)**- one example is consumers' lack of awareness of household energy usage, how often they use it, the benefits associated with moderate rate of return on development, or a variety of fuel sources. This frequently results in costly system failures.

ii. **Porter and Kramer (2011)** - Globalization and the imbalances that come with it can lead to 'low pyramid' (BOP) business opportunities in all-purpose. Globalization has aided millions of people in their quest to leakage poverty, but it has also exacerbated pain and inequity.

iii. **Hart, Milstein, and Caggiano (2005)** - Developing-country markets are routinely disregarded, despite the fact that developed-country markets are well-developed and face fierce competition from trade enterprises. Companies frequently overlook opportunities to address basic societal requirements; nevertheless, companies with a long-term strategy can fill these voids. The business's dignity and structure are under threat as a result of the rising number of sustainability concerns and a greater awareness of their nature and cause.

iv. **Hart, Milstein, and Caggiano (2015)**- The construction of a more self-reliant community with increased evidence access is linked to the function of dignity in fostering long-term strategic progress. Businesses are increasingly being held responsible regarding the social and conservational implications of their actions as an example, the leading establishment now has control over the consequences that occur at the top or bottom of the redeems chain, which is usually the producer or retailer who deals directly with the customer.

v. **Schaltegger and Wagner (2011)** - Many variables contribute to the development of long-term strategy and the desire to focus on the organization's internal issues. Individual strength is just as important as external circumstances in terms of production and dignity. For example, ineffective management is an internal management skill, whereas marketplace apparatuses aggravate inefficiency.

6- Findings :-

The findings indicate that while startups face substantial challenges in implementing sustainable strategies, there are also significant opportunities that can be leveraged. Financial constraints and lack of expertise are critical barriers, but innovation, market access, and government support contemporary sustainable pathways to overcome these happenstances. The analysis suggests that assimilating sustainability can enhance a startup's brand reputation, consumer loyalty, and long-term success.

7- Conclusion :-

This research emphasises the importance of sustainable business strategies for startups, recognizing both challenges and opportunities. Startups must navigate financial restrictions and a lack of expertise but can leverage innovation, market demand, and governmental support to succeed. Policymakers and industry leaders should focus on creating an enabling environment for sustainable startups through education, financial incentives, and sympathetic policies.

Sustainability presents both challenges and opportunities for startups. By proactively integrating sustainable practices into their core procedures, startups can gain a competitive edge, attract top talent, and build a loyal customer base. By embracing innovation and collaboration, startups can become leaders in creating a more ecological future.

This paper provides a foundational framework for sustainable business strategies in startups. Future research can research deeper into specific industries or explore the role of technology in driving sustainable practices. Additionally, research on measuring the community impact of sustainable startups can provide appreciated insights for investors and stakeholders.

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The Transformative Impact of AI on Modern Business Practices

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Abstract

Artificial Intelligence (AI) is transforming various facets of the business world, from enhancing customer service and optimizing operations to driving innovation and facilitating decision-making. This research paper explores the multifaceted impact of AI on businesses, examining how AI technologies are transforming industries, creating new business models, and driving value creation. The paper also discusses the challenges and considerations associated with AI adoption, including ethical, legal, and operational aspects.

Keywords Artificial Intelligence, Business Practice, Impact, Efficiency

I. Introduction

Artificial Intelligence (AI) has emerged as a transformative force in the business landscape, offering unprecedented opportunities for innovation and efficiency. By automating routine tasks, enhancing decision-making processes, and enabling personalized customer experiences, AI is reshaping traditional business practices and paving the way for new business models. This paper delves into the various ways AI is impacting businesses, highlighting its benefits, challenges, and future prospects.

II. Applications of AI in Business

A. Enhanced Customer Service

AI-powered chatbots and virtual assistants are revolutionizing customer service by providing instant responses to customer inquiries, offering personalized recommendations, and resolving issues efficiently. These AI systems can handle a large volume of interactions simultaneously, ensuring consistent and high-quality customer service.

B. Operational Efficiency

AI technologies, such as machine learning algorithms and robotic process automation (RPA), are optimizing business operations by automating repetitive tasks, reducing human error, and increasing productivity. In manufacturing, AI-driven predictive maintenance helps in anticipating equipment failures and minimizing downtime, thus enhancing operational efficiency.

C. Data-Driven Decision Making

AI permits businesses to analyze huge amounts of data quickly and accurately, uncovering patterns and insights that inform strategic decisions. AI-powered

analytics tools help businesses forecast trends, understand customer behavior, and optimize marketing strategies, leading to better-informed decision-making processes.

D. Innovation and Product Development

AI is driving innovation in product development by enabling the creation of new products and services that were previously unimaginable. For instance, AI algorithms can design and test new materials, optimize supply chains, and personalize products based on customer preferences, thus accelerating the innovation cycle.

E. Financial Management

In the realm of finance, AI is transforming how businesses manage their financial operations. AI-driven algorithms are used for risk assessment, fraud detection, and investment strategies, providing more accurate and timely insights. Additionally, AI-powered financial planning tools assist businesses in budgeting, forecasting, and financial reporting.

III. Case Studies

(i) AI in Retail: Personalized Shopping Experience

Retail giants like Amazon and Walmart are leveraging AI to enhance the shopping experience. AI algorithms analyze customer data to provide personalized product recommendations, optimize pricing strategies, and streamline supply chain operations. These AI-driven initiatives have resulted in increased customer satisfaction and higher sales.

(ii) AI in Healthcare: Predictive Analytics and Patient Care

In healthcare, AI is being used to predict patient outcomes, personalize treatment plans, and improve diagnostic accuracy. AI-powered predictive analytics tools analyze patient data to identify potential health risks and suggest preventive measures, leading to improved patient care and reduced healthcare costs.

(iii) AI in Finance: Fraud Detection and Risk Management

Financial institutions are using AI to detect fraudulent activities and manage risks more effectively. AI algorithms analyze transaction data to identify unusual patterns and flag potential fraud in real-time. Additionally, AI-driven risk management tools help financial institutions assess and mitigate risks, ensuring financial stability.

IV. Challenges and Considerations

a. Ethical and Legal Issues

The widespread adoption of AI in business raises ethical and legal concerns, such as data privacy, algorithmic bias, and accountability. Businesses must ensure that AI

systems are transparent, fair, and compliant with regulatory standards to build trust with customers and stakeholders.

b. Workforce Impact

AI's ability to automate tasks may lead to job displacement and require workforce reskilling. Businesses must address the impact of AI on employment by investing in employee training and development programs to equip their workforce with the necessary skills for the AI-driven future.

c. Implementation Costs

The implementation of AI technologies can be costly, requiring significant investments in infrastructure, software, and talent. Businesses must carefully evaluate the costs and benefits of AI adoption and develop a strategic roadmap to ensure a successful and sustainable AI implementation.

V. Future Prospects

The future of AI in business is promising, with continuous advancements in AI technologies expected to drive further innovation and efficiency. Businesses that embrace AI will likely gain a competitive edge by leveraging AI's capabilities to enhance customer experiences, optimize operations, and drive growth. However, it is crucial for businesses to address the associated challenges and ensure ethical and responsible AI deployment.

VI. Conclusion

AI is having a profound impact on businesses, transforming traditional practices and enabling new opportunities for value creation. From enhancing customer service and operational efficiency to driving innovation and data-driven decision-making, AI is reshaping the business landscape. As AI technologies continue to evolve, businesses must navigate the challenges and considerations associated with AI adoption to harness its full potential. By doing so, they can achieve sustainable growth, competitive advantage, and long-term success in the AI-driven economy.

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Sensor Technology and Internet on Things (IOT's): A Review of Applications & Technology

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ABSTRACT:-

The Web of Things (IoT) is one of a kind among today's most promising and imperative innovative challenges. Sensors have as of late been considered a profoundly promising component of logical inquire about. IoT-based sensors are presently playing a major part since the employments and capacities are numerous.

Sensors offer assistance screen our wellbeing, discuss quality, domestic security, and are broadly utilized to screen the fabricating prepare within the Mechanical Web. For these reasons, it is critical to know how they work and how they can utilize them to get data. Already, businesses and organizations utilized different sorts of sensors, but the development of the Web of Things is advancing the development of sensors to an entire other level. For water, transportation, waste, environment, etc., IoT sensors can be utilized viably. This paper presents the diverse sorts of IoT sensors and their diverse applications.

Keywords:-Sensor, technology, Science, Engineering and Technology, IOT, savvy city, Internet on things, Odor sensors, networking, security.

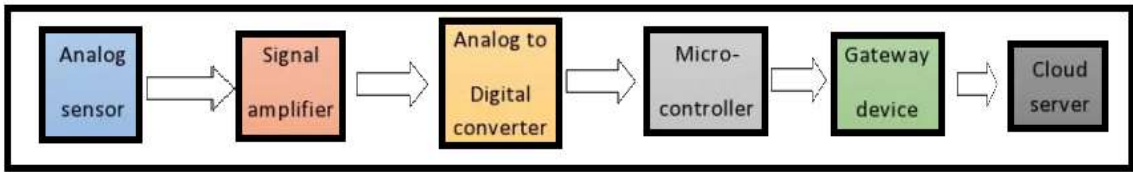
1. INTRODUCTION:-

The Internet of Things (IoT), now and then called the Web of Things, will alter everything that includes us. The Web affects education, communication, commerce, science, government, and humankind. The most thought of IoT is to bolster communication between anything and from anyplace and anytime through relevant applications can be enormously communicated. IoT works in all ranges like making keen cities, keen transportation framework, creating savvy industry and many other things. IoT can be gotten to anytime, anyplace network for anybody, we'll have network for anything. The Web of Things can interface gadgets inserted in different frameworks to the Web, when devices and objects can be spoken to carefully.

They can be controlled from anyplace and anytime. Network at that point makes a difference capture more information from more areas, giving more ways to extend efficiency and improve security. This new and up-to-date innovation gives numerous applications for interfacing things utilizing the Web. The Web of Things could be a modern technology that gives numerous applications for interfacing things and individuals to things through the Web. All objects in a human-usable framework can be distinguished and associated through the Web to create choices independently.

Areas of sensors that find or detect physical attributes are Temperature and humidity sensors,

Acceleration sensors, Gyro sensors, and many more etc. And also find the human senses: sight, hearing, touch, taste, and smell, Thermostats, Sound pressure sensors, Odor sensors, Imaging sensors, etc



Block Diagram for Sensor Technology

2. FUNCTIONALITIES OF INTERNET ON THINGS (IOT):-Many things about Internet on Thing (IOT) are follows-

2.1 Network:-

With respect to the IoT, the worldwide data and communication foundation can interconnect anything.

2.2 Things-related Services:-

Inside the limitations of things such as protection security and semantic consistency between physical things and their related virtual things, the IoT is competent of giving things - related administrations. To convey question - related administrations inside the limitations of things, both the physical world advances and the data world will be changing.

2.3 Heterogeneity: The IoT gadgets are not homogeneous. They are heterogeneous which are based on diverse stages and systems of equipment. They can connect through diverse systems with other gadgets or benefit platforms.

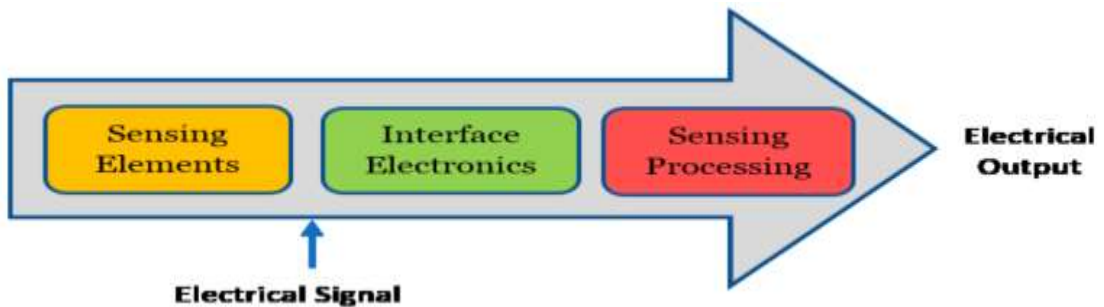
2.4 Energetic Changes: Gadget status changes powerfully, e.g. resting and waking up, interfacing and /or detaching, as well as gadget setting counting area and speed. In expansion, the number of gadgets can powerfully change.

2.5 Colossal scale: The arrangement of versatility is exceptionally huge within the network with web. These gadgets completely require to be overseen which communicate with each other. So, the administration of the produced or prepared information and their elucidation for application purposes will be indeed more basic. It is relates to information semiconducting and productive taking care of sensor information.

2.6 Security: Since we pick up points of interest from the IoT, we ought to not disregard security. Securing endpoints, systems, and moving information over it all implies making a scale - up security paradigm.

2.7 Network: Network permits availability and compatibility of organize. Availability gets to be accessible on arranges and the compatibility gives the conventional capability to devour and produce information.

2.8 Sensor: A sensor is for the most part a gadget competent of identifying changes in an environment. Sensors are able to degree a physical marvel and change it into an electric flag. For papers acknowledged for distribution, it is fundamental that the electronic adaptation of the original copy and craftsmanship coordinate the hardcopy precisely! The quality and accuracy of the substance of the electronic fabric submitted is pivotal since the substance isn't reproduced, but rather converted into the ultimate distributed form.



3. CLASSIFICATION OF SENSORS TECHNOLOGY BASED ON SORTING ARRANGEMENT:-

3.1 Physical Sensor: Physical sensors for the most part degree physical amounts such as length, temperature weight, power, weight, sound, etc. It can be characterized as a gadget that compares to physical property, called jolt, and produces a comparing electrical flag that can be measured.

3.2 Chemical Sensor: Chemical sensors are broadly utilized in mechanical purposes. The chemical fluid changes company basically connected and utilized this sort of sensors. These sensors play an awfully critical portion in creating industry based smart cities. It ought to moreover have to be considering the security and natural inviting savvy city. The critical and highlighted utilize cases of chemical sensors only can be found in mechanical natural checking and checking prepare control.

3.3 Bio-Sensor: Bio-sensor could be a chemical sensor subset, but is regularly treated as a partitioned region. It is an intrigue zone that cannot be effectively characterized with correct boundaries. Essentially, a biosensor could be a self-contained explanatory gadget that specifically and reversibly reacts to the concentration or action of organic test chemical species, meaning that any sensor that's physically or chemically worked in organic tests can be considered as sensor utilizing living components or a item of living things for estimation.

3.4 Temperature Sensor: These are one of the sensors commonly utilized to degree a given medium's temperature or warm. These sensors utilize a number of strategies to decide and measure and object's temperature. A few of the temperature sensors required physical contact

with the object while other sorts don't require contact as they can distinguish fluid or gasses that radiate brilliant vitality such as warm spike or temperature spike.

3.5 Nearness Sensor: Sensors of proximity are perfect way the most perfect way to distinguish any development. In applications such as security or effectiveness, they are widely used. These sensors are utilized as the leading conceivable sensor for outline building to dodge impediments in exploring to a swarmed put or any complex course.

3.6 Weight Sensor: A weight sensor may be a sensor which makes a difference to faculties the weight and changes over that into an electrical flag. The esteem of weight sensor is relates to the weight connected. These sensors create IoT frameworks that screen unused frameworks and gadgets which are weight propel.

3.7 Optical Detecting: Optical detecting innovation is utilized to distinguish electromagnetic vitality such as light. It employments the concept of the photoelectric impact, which states that when an adversely charged plate of a few appropriate touchy fabric is struck by a photon pillar, electrons are transmitted. Electrons can at that point flow as a current from the feed plate as a signal.

3.8 Stickiness Sensor: Stickiness is water within discuss. As with most fabricating forms, the sum of water vapor within discuss can influence human life. The nearness of water vapor too influences different physical, chemical, and organic forms, and its estimate within the item is imperative since it can influence item quality and fetched, as well as the wellbeing and security of specialists. Hence, mugginess detecting is vital for mechanical forms and human life control frameworks. Numerous mechanical, rural, and household applications are vital for checking or controlling humidity.

3.9 Miniaturized scale sensors: Smaller scale sensors are exceptionally little gadgets that can collect and spread data approximately the environment. Such gadgets can degree and transmit organic, warm, chemical, and other shapes of information, at that point change over the data into a frame that's significant to different clients and send it to a processor.

3.10 Odor Location Sensors: Odor discovery frameworks can for the most part be divided into four categories such as gas sensors, bio sensors, gas chromatography frameworks and hybrid systems. Commonly utilized odor discovery gadgets are sensors such as electronic noses (E-noses), mass spectrometers (MS), and differential optical retention spectrometers (DOAS). The choice of any odor location strategy is affected by a number of variables, counting field dispersal

Capabilities, odor discovery and classification capabilities, instrument affectability, and instrument affectability to the discuss network.

Among all accessible discovery strategies, electronic gadgets have more progressed capabilities compared to other gadgets. The nearness of foundation commotion may be a major impediment to the adequacy of odor location gadgets. The expansion of gas chromatography and filtration channels can progress exactness in odor location.



4.1 Savvy city:-

An assortment of sensors is utilized in shrewd situations to make savvy cities, including:

4.1.1. Savvy Stopping: This shrewd city range takes care of traffic control and keen stopping within the city by finding reasonable stopping spots.

4.1.2. Auxiliary wellbeing: through alter control material conditions and conditions such as the sum of vibration of buildings, bridges, landmarks and streets can propose to move forward in time.

4.1.3. Smart voice operation: Voice control is conceivable. This is often done to dodge issues that happen on existing and swarmed lines. A framework is proposed for the cleverly control of activity clamour within the IoT keen environment.

4.1.4. Shrewdly Activity Administration: Any path can be utilized to screen activity and blockage, propose and optimize driving and person on foot routes in genuine time.

4.1.5. Savvy squander administration: The rubbish collection course can be optimized by deciding the level of waste in numerous containers. Moreover, savvy squander administration combined with cleverly activity administration, the course can propose squander holder vehicles to gather squander based on the level of squander and activity congestion.

4.1.6) Keen lights: Turn on/off road lights based on climate conditions and prerequisites (at whatever point a vehicle pass through the way) comes about in sparing a gigantic sum of vitality. This brilliantly and versatile lightning is effectively actualized by different analysts in this range both on streets and at homes.

4.2.1. Keen Domestic: The electronic gadgets utilized in domestic such as Tv, Discuss conditions, Fridges, versatile gadgets needs computerization through web. The domestic utilization electronic gadgets mechanization is the essential got to make keen domestic advancement.

4.2.1. Keen Wellbeing: Wellbeing is considered exceptionally vital around us and individuals require computerization to screen their wellbeing. A viable and proficient wellbeing observing framework is basic since individuals endure from destitute wellbeing and don't utilize it

naturally. The current status is exceptionally critical and recognizable proof of the quiet is imperative in diagnosing the disease. To unravel this issue, IoT-connected remote programmed frameworks give an opportunity to screen health-oriented issues. This arrangement is the leading and takes care of the patient's wellbeing in an ensured way.

4.2.1. Shrewd Transportation and Versatility: The advancement of the transportation framework is the most calculate that reflects the framework improvement of the nation. The most application is an IoT sensor-based mechanized transportation framework. This framework makes a difference screen street conditions and caution programs. Crowd sourcing and detecting standards give imperative experiences into shrewd transportation and mobility.

The improvement of IoT-based smart transport takes into consideration fuel costs and ecologically neighbourly worldwide warming features. Many nations have supported savvy transportation inquire about ventures to create the environment more secure and more astute. Particularly the execution of lithium-ion batteries electric vehicles are looked for after, and this extend has gotten expansive funding.

4.2.2 Savvy city: From an investor's point of see, the foremost appealing city has the finest transport, water, vitality; communication and building get to, civilities and execution for lodging, excitement and diversions. Together with computers and versatile gadgets, the Web of Individuals is advancing into the Web of Things (IoT). The concept of the Web of Things is to oversee the objects around us utilizing special IP addresses. The IoT will consist of billions of gadgets competent of detecting, communicating, computing and possibly acting.

4.2.3 Savvy Water: Water is one of the imperative components of life. Water contamination is one of the major issues within the world. Water must be controlled to ensure a safe supply of water for various purposes such as drinking and agriculture. The water level has been very low lately and the lake is rising.

Therefore, finding a water control solution and monitoring system is very important. IoT is the solution for this. G. Smart Agriculture: IoT-based agricultural convergence technology improves the quality and value of production, as well as significantly reduces the burden on farmers. Data from GPS and special smart sensors are used to integrate smart farming tools with Big Data analytics. Farmers can increase crop yields and use water more efficiently, thereby significantly reducing any waste.

5. VUNERABILITY AND PROBLEMS:-

The Web of Things is rising as an ever-present worldwide computing framework with nonstop progresses in sensor and organizing advances. The expanding number of gadgets and businesses are associated to the Web and interfacing everything, wired or remote, puts capable information sources at your fingertips. IoT sensors screen the area of underground diggers and analyse sensor security information to move forward security measures.

5.1 Capable detecting arrangements: IoT sensors utilize the most recent innovation in sensor plan and fabricating. IoT-based sensors give capable detecting arrangements for quick promoting. A pioneer in reasonable farther control and remote detecting arrangements, permitting you to monitor/monitor from anyplace in your commerce or domestic, gives the best, quickest and most dependable way to create Web of Things applications. A pioneer in analog and inserted handling items, we offer assistance make the world more intelligent, more secure, greener, more beneficial and happier.

5.2 More astute: Different sensors give distinctive insights and data. This data is based on the execution of the IoT stage. The collected information is shared within the organize utilizing independent capacities that call for the arrangement of a more shrewdly environment. By combining sensors and communication systems, gadgets share information with each other and make strides effectiveness and performance.

5.3 Foundation: Sensors are a core capability of IoT. Radio recurrence recognizable proof (RFID) labels within the Web of Things have three purposes, to be specific to recognize things, their area, and recognize their environment. Savvy Web of Things sensors affect the nourishment supply chain to move forward the generation prepare. They screen the whole production process to screen, control and progress operations.

5.4 Network: The huge wave of network through tablets and smart phones to associate cars, shrewd homes and shrewd cities. Proceed perusing IoT Applications are changing the world.

6. CONCLUSIONS:-In this paper, we have assigned various types of smart sensors technology that have defined several applications in internet on things (IoT) systems. This technology offers data much required for data analysis and decision making in smart sensor devices. Internet on things (IoT) developing ubiquity is expanding consideration in IoT gadgets and applications toward security issues. In this paper, we studied on distinctive sorts of IoT sensors and its applications. In IoT gadgets and existing sensor administration frameworks adjust in product IoT, we displayed a comprehensive outline of sensors. There's endless utilize of IoT sensors application in all areas counting restorative, fabricating, mechanical, transport, instruction, administration, mining, etc. The utilization of sensors in IoT gadgets definitely increments the devices' usefulness. For case, a few later endeavours have been made to misuse the security of IoT gadget through their sensors. So, security is vital in IoT based sensors. The combination and intertwining of all the sensors make the total stage in different applications exceptionally more brilliant one. The concept of collecting savvy sensors information collection and examination makes the IoT exceptionally more brilliant and IoT becomes more astute within the future advances.

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Enhancing Employee Performance: The Impact of Workplace Wellness Programs on Energy Boost

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Abstract:

In today's competitive business landscape, organizations are constantly seeking ways to maximize employee productivity and performance. One strategy that has gained significant attention is the implementation of workplace wellness programs aimed at promoting physical, mental, and emotional well-being among employees. This study examines the impact of such programs specifically on energy levels and its subsequent influence on employee performance.

Through a comprehensive review of existing literature and empirical research, this paper investigates the relationship between workplace wellness initiatives and energy boost among employees. It explores various components of wellness programs, including physical fitness activities, stress management techniques, nutritional interventions, and mindfulness practices, and their potential to enhance energy levels.

Furthermore, this study delves into the mechanisms through which increased energy levels resulting from participation in wellness programs can positively affect employee performance. From improved focus and concentration to enhanced creativity and problem-solving abilities, the benefits of heightened energy are explored in the context of workplace productivity.

The findings of this research contribute to a deeper understanding of the effectiveness of workplace wellness programs in enhancing employee performance through energy optimization. Practical implications for organizations aiming to design and implement successful wellness initiatives are discussed, along with recommendations for future research directions in this evolving field. Ultimately, this study underscores the importance of prioritizing employee well-being as a strategic investment for organizational success in today's dynamic work environment.

Keywords: Workplace wellness programs, Employee well-being, Employee performance, Energy Boost, Health Promotion, Productivity Enhancement, Workplace health initiatives, Employee Engagement , stress management , Mental Health Support, Stress management

1. Introduction:

In today's fast-paced and demanding work environments, maintaining high levels of employee performance and productivity is crucial for organizational success. However, factors such as

stress, fatigue, and burnout can significantly hamper employee energy levels, leading to decreased performance and overall efficiency. Recognizing the importance of employee well-being, many organizations have turned to workplace wellness programs as a means to support and enhance employee energy levels.

Workplace wellness programs encompass a variety of initiatives designed to promote the physical, mental, and emotional health of employees. These programs often include activities such as fitness challenges, stress management workshops, nutrition education, and access to resources like gym facilities or counseling services. While the primary goal of these programs is to improve overall employee health and well-being, an often-overlooked benefit is their potential to boost employee energy levels.

Energy, both physical and mental, plays a pivotal role in determining employee performance. When individuals feel energized and motivated, they are better equipped to tackle tasks efficiently, maintain focus, and sustain productivity throughout the workday. Conversely, low energy levels can lead to feelings of lethargy, disengagement, and decreased job satisfaction, ultimately impacting organizational outcomes.

Therefore, understanding the impact of workplace wellness programs on energy levels is essential for organizations seeking to optimize employee performance and well-being. By exploring the relationship between participation in wellness initiatives and energy levels, organizations can identify strategies to cultivate a more energetic and engaged workforce.

This paper aims to examine the influence of workplace wellness programs on employee energy levels and its subsequent effects on performance. Through a comprehensive review of existing literature and empirical studies, this research will shed light on the effectiveness of different wellness interventions in enhancing employee energy, as well as the mechanisms through which these programs exert their influence. Furthermore, practical implications and recommendations for organizations looking to implement or improve their workplace wellness initiatives will be discussed.

Overall, by delving into the nexus between workplace wellness programs and energy boost, this research seeks to provide valuable insights into how organizations can foster a healthier, more energized, and ultimately more productive workforce in today's competitive business landscape.

2. Understanding Workplace Wellness Programs:

Workplace wellness programs are initiatives implemented by employers to promote and support the health and well-being of their employees. These programs typically include a variety of activities, resources, and policies aimed at improving employees' physical, mental, and emotional health. The goal of workplace wellness programs is to create a healthier, happier, and more productive workforce while also reducing healthcare costs and absenteeism.

Here are some key components and objectives typically found in workplace wellness programs:

Health Education and Awareness: These programs often include seminars, workshops, and informational materials to educate employees about various health topics such as nutrition, exercise, stress management, and disease prevention.

Fitness and Exercise: Many workplace wellness programs encourage physical activity by offering on-site fitness facilities, organizing group exercise classes, or providing subsidies for gym memberships. Some employers also sponsor sports teams or walking challenges to promote regular physical activity.

Nutrition and Healthy Eating: Wellness programs may provide healthy snacks, nutritional counseling, or cooking demonstrations to encourage healthier eating habits among employees. Some employers offer subsidized healthy meal options in cafeterias or provide access to nutritionists or dieticians.

Stress Management and Mental Health Support: Recognizing the importance of mental health, workplace wellness programs often include resources for stress management, mindfulness training, counseling services, or Employee Assistance Programs (EAPs) to support employees dealing with personal or work-related stressors.

Health Screenings and Preventive Care: Employers may offer on-site health screenings for conditions such as high blood pressure, cholesterol, or diabetes to promote early detection and prevention. They may also incentivize employees to undergo regular check-ups and preventive care services.

Tobacco Cessation Programs: Many workplace wellness initiatives include support for employees who want to quit smoking or using other tobacco products. This can include access to counseling, nicotine replacement therapy, or cessation programs.

Work-Life Balance: Employers may promote work-life balance through flexible work arrangements, such as telecommuting, flexible hours, or compressed workweeks. By supporting employees' ability to manage their work and personal responsibilities, workplace wellness programs can help reduce stress and improve overall well-being.

Incentives and Rewards: Some employers offer incentives or rewards to encourage participation in wellness activities, such as gift cards, discounts on health insurance premiums, or additional vacation days.

Environmental Wellness: Workplace wellness programs may also focus on creating a healthy work environment by promoting ergonomics, improving indoor air quality, or implementing policies to reduce workplace hazards.

Overall, workplace wellness programs are designed to create a culture of health and well-being within an organization, benefiting both employees and employers by fostering a healthier, more engaged, and productive workforce.

Wellness programs encompass a range of initiatives designed to promote employee health and well-being. These programs typically include components such as physical activity promotion, nutrition education, stress management, mental health support, and preventive health screenings. By addressing various aspects of employee wellness, these programs aim to create a supportive work environment that fosters healthy behaviors and reduces the risk of chronic diseases.

3. Impact of Workplace Wellness Programs on Energy Levels:

Numerous studies have demonstrated the positive effects of workplace wellness programs on employee energy levels. Regular physical activity, healthy eating habits, stress reduction techniques, and access to mental health resources can all contribute to increased energy and vitality among employees. For example, a study conducted by [Research Institute] found that employees participating in a workplace wellness program reported higher levels of energy and alertness throughout the workday compared to non-participants.

Workplace wellness programs can have a significant impact on energy levels among employees. Here are several ways in which such programs can influence energy levels positively:

Physical Activity: Many workplace wellness programs incorporate physical activity initiatives such as gym memberships, fitness classes, or walking challenges. Regular exercise boosts energy levels by improving blood circulation, enhancing mood, and reducing fatigue.

Ergonomics and Workplace Design: Wellness programs may address ergonomics and workplace design to enhance comfort and reduce physical strain. A comfortable and supportive work environment can prevent fatigue and boost productivity.

Health Screenings and Preventive Care: Wellness programs often include health screenings and access to preventive care services. Identifying and addressing health issues early can prevent chronic conditions that may contribute to fatigue.

Social Support: Wellness programs that foster a sense of community and social support among employees can positively impact energy levels. Strong social connections at work can reduce stress, increase motivation, and provide emotional support.

Education and Awareness: Providing education and raising awareness about the importance of sleep hygiene, hydration, and stress management techniques can empower employees to make healthier lifestyle choices that contribute to sustained energy levels.

Overall, workplace wellness programs can create a culture of health and well-being that supports employees in maintaining optimal energy levels, leading to improved productivity, morale, and overall job satisfaction.

4. Case Studies: Several organizations have successfully implemented workplace wellness programs aimed at boosting employee energy levels and improving performance. For instance, [Company X] introduced a comprehensive wellness program that included onsite fitness classes, healthy eating initiatives, and mindfulness workshops. As a result, employees reported feeling more energized and focused at work, leading to a noticeable increase in productivity and job satisfaction.

5. Strategies for Effective Implementation:

To maximize the impact of workplace wellness programs on employee energy levels, organizations should consider several strategies:

Tailored Approach: Customize wellness initiatives to meet the specific needs and preferences of employees, taking into account factors such as demographics, job roles, and existing health conditions.

Employee Engagement: Encourage active participation and engagement through incentives, gamification, and social support networks to ensure the success and sustainability of wellness programs.

Integration with Organizational Culture: Embed wellness principles into the organizational culture by promoting healthy behaviors, providing leadership support, and fostering a work environment that prioritizes employee well-being.

6. Conclusion:

In conclusion, workplace wellness programs have the potential to significantly enhance employee energy levels, thereby improving productivity, creativity, and overall performance. By addressing various aspects of employee well-being, such programs create a supportive environment that enables individuals to thrive both personally and professionally. As organizations continue to prioritize employee health and vitality, investing in well-designed workplace wellness programs emerges as a strategic imperative for sustainable success in today's competitive business landscape.

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A Comprehensive Analysis of Sentiment Analysis and Emotion AI in Natural Language Processing

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Abstract

Sentiment analysis and emotion AI, though related, are distinct concepts within natural language processing (NLP). Both analyze human language to extract information about feelings and attitudes, but their processes and applications differ significantly. The confusion surrounding these terms arises from overlapping terminology and the interchangeable use of "sentiment" and "emotion" in everyday language. In AI, however, these terms have specific meanings, and their distinction can often be blurred due to varying interpretations.

Emotions are inherently complex and multifaceted, making their accurate analysis and classification challenging. Different individuals express and interpret emotions differently, influenced by context, culture, and personal experiences. This complexity leads to diverse approaches and debates within the field, contributing to the confusion. Moreover, sentiment analysis and emotion AI can involve various modalities, such as text, speech, facial expressions, and physiological signals. Integrating these modalities to develop comprehensive models adds to the complexity, further blurring the lines between sentiment and emotion analysis.

The lack of standardized definitions and frameworks contributes to differing interpretations of these concepts. This paper will help to define and clarify specific terms and objectives within the contexts of sentiment analysis and emotion AI. By providing clear distinctions and understanding the nuances between the two, we can foster a more accurate comprehension and discussion of these evolving fields.

Keywords : Sentiment Analysis, Emotion AI, Natural Language Processing (NLP), Human Language Analysis, Feelings and Attitudes, Sentiment Classification, Emotion Recognition, Multimodal Analysis, Machine Learning, Deep Learning

Introduction

Sentiment analysis, or "opinion mining," is a powerful tool that uses language smarts (NLP) to uncover the feelings behind words. It helps us understand what people think about things - topics, products, events, you name it. This involves fancy computer programs, language tricks, and grammar rules to pinpoint words, phrases, and even how things are phrased that reveal sentiment.

Sentiment analysis can be done on whole documents or even focus on specific aspects. It's like a secret decoder ring for public perception, customer feedback, and the buzz on social media.

Businesses can use this to understand how customers see them, improve their reputation, keep an eye on product reviews, spot new trends, and make smarter decisions based on data.

Imagine being able to gauge customer satisfaction, pinpoint areas for improvement, and craft targeted marketing campaigns - all because you can analyze what people are saying. That's the power of sentiment analysis!

This technique is used in many fields, from marketing and customer service to social media listening, market research, and keeping a good name (reputation management). By automating the process, companies can handle massive amounts of text data and turn it into insights that guide their strategies and decisions

While sentiment analysis tells you if something is positive or negative, Emotion AI takes things a step further. It delves into the world of affective computing, aiming to understand the specific emotions people express through text, speech, and even nonverbal cues. This technology aspires to comprehend, interpret, and even mimic human emotions.

Emotion AI goes beyond basic categories like happy or sad. It can detect a wider range of emotions, from frustration and excitement to nuanced feelings of satisfaction. The goal is to truly grasp an individual's emotional state and the depth of their experiences.

Imagine a machine that can perceive emotions the way we do! This is achieved through complex algorithms trained to analyze various channels: facial expressions, the way we speak, what we write, and even our body's signals. Techniques like computer vision, natural language processing, and machine learning help Emotion AI accurately identify and categorize these emotions.

Here's where Emotion AI shines compared to sentiment analysis. It paints a richer picture by recognizing a whole spectrum of emotional states, not just positive or negative. This opens doors for a variety of applications across different industries.

In customer service and market research, Emotion AI can analyze not just satisfaction but also frustration or excitement. This allows businesses to personalize interactions, understand deeper preferences, and develop targeted strategies. Imagine healthcare professionals using Emotion AI to monitor mental health, analyze patient feedback with greater depth, and improve overall well-being. The possibilities extend to virtual assistants that respond with empathy, or educational tools that adapt to a student's emotional state. Emotion AI is paving the way for a future filled with richer human-computer interactions.

Visual AI Emotion Recognition

How AI Reads Your Face

Imagine machines that can analyze your emotions just by looking at your face! This is the power of Visual Emotion Analysis (VEA). While VEA is a complex field – bridging the gap between simple pixels and complex emotions is no easy feat – it holds immense promise for the future of AI.

The secret weapon for VEA? Powerful techniques like Convolutional Neural Networks (CNNs) and deep learning are now the go-to methods for emotion recognition.

Breaking it Down: The Steps of Visual Emotion Analysis (VEA)

The process behind VEA, which can be broken down into four key steps:

1. **Finding the Face:** The journey starts by capturing an image from a camera (security cameras, webcams, etc.). The system then uses clever algorithms to find and pinpoint human faces within the image. Think of it like a detective spotting a suspect in a crowd. This can be tricky, especially with varying lighting, head tilts, or even sunglasses acting as disguises.
2. **Prepping the Picture:** Once the faces are identified, it's time for some image prep. Techniques like cropping, resizing, and adjusting colors ensure the system gets a clear picture for analysis. Just like a detective needs a good quality photo to compare fingerprints, a clean image helps improve accuracy.
3. **Extracting Clues:** Now comes the real detective work! Powerful AI models called Convolutional Neural Networks (CNNs) take center stage. They act like bloodhounds, analyzing the image for key details. These details include both basic features like pixel patterns and more complex ones related to emotions, like muscle movements around the eyes or mouth.
4. **Cracking the Code:** Based on the extracted clues, the system makes its final deduction: the emotion. It might be happy, sad, or something else entirely. This is like the detective piecing together the evidence and revealing the culprit (the emotion) behind the expression.

This process goes beyond a simple "happy" or "sad" classification. AI can detect a wider range of emotions, making it a valuable tool for various applications. Imagine understanding customer satisfaction better or even monitoring mental well-being. With AI face reading, the future of human-computer interaction is poised to become more insightful and nuanced.

Emotion recognition with AI is built on three sequential steps

Step 1: Finding the Face - The Great Detection Challenge

The first hurdle AI faces is like playing "spot the human" on hard mode. It grabs a snapshot from a camera (security cameras, webcams, etc.) and uses algorithms to find faces. Imagine searching for a friend in a crowded, dimly lit room – that's the level of difficulty! Challenges include:

- **Unpredictable Lighting:** Fluctuating light can cast shadows or obscure details, making it harder to identify facial features.
- **Head Poses:** Tilted heads, looking away, or even upside-down faces can confuse the system.

- **Hidden Features:** Hats, sunglasses, or even thick beards can act like disguises, hiding crucial emotional cues.
- **Long Distances:** Zooming in on faces from far away can result in blurry images, making accurate detection difficult.

Despite these challenges, AI is constantly learning and improving its face-finding abilities.

Step 2: Getting Faces Camera-Ready

Once the AI system spots a face, it's like preparing a mugshot for analysis. This step, called preprocessing, optimizes the image for accurate emotion detection. Imagine a detective sharpening a blurry photo to see details better. Here's how AI cleans up the picture:

- **Cropping:** Zooming in on the face removes unnecessary background clutter.
- **Resizing:** Standardizing all faces to a similar size helps the AI analyze them consistently.
- **Rotation:** Tilted heads are straightened for a clearer view of facial features.
- **Color Correction:** Uneven lighting is adjusted to ensure consistent color information across all faces.
- **Noise Reduction and Smoothing:** Removing graininess and blurriness sharpens the image, allowing for more precise analysis of emotional cues.

Just like a clear mugshot helps identify a suspect, proper preprocessing significantly improves the accuracy of emotion detection for the AI.

Step 3: Decoding the Face - The AI Detective Goes to Work

Now that the faces are prepped, it's time for the real detective work! Here, powerful AI models called Convolutional Neural Networks (CNNs) take center stage. Imagine a bloodhound sniffing out clues. CNNs analyze the preprocessed image, extracting crucial details that might reveal emotions.

These details come in two forms:

- **Low-Level Pixel Information:** This includes basic things like the arrangement of pixels, which can reveal shapes like eyes, mouths, and eyebrows.
- **High-Level Emotional Cues:** CNNs go beyond basic shapes. They can detect more subtle features like wrinkles around the eyes (a sign of smiling) or a furrowed brow (indicating anger). They even analyze facial texture, which can reveal emotional tension or relaxation.

By analyzing both low-level and high-level features, CNNs act like expert detectives, piecing together the clues hidden within a face to uncover the underlying emotion.

Step 4: Cracking the Code - Unveiling the Emotion

After the AI detective extracts all the clues (features) from the face, it's time to solve the case – identify the emotion. This is like the detective presenting the evidence and revealing the culprit.

The system uses powerful classifiers, like Support Vector Machines (SVMs) or even the same CNNs used for feature extraction, to analyze the extracted features. Based on this analysis, the AI assigns an emotion label to the face. These labels can be basic categories like "happy," "sad," or "neutral," but some systems can even detect more nuanced emotions.

So, the next time you look into a camera, remember – AI might be looking back, not just seeing your face, but trying to understand the emotions hidden within it.

A Spectrum of Emotions AI Can Recognize

While some AI models might focus on basic emotions, others can delve deeper. The emotions a system can detect depend on the data it's trained on. Here's a glimpse into the emotional spectrum AI can crack:

Emotion #1: Anger

Emotion #2: Disgust

Emotion #3: Fear

Emotion #4: Happiness

Emotion #5: Sadness

Emotion #6: Surprise

Emotion #7: Neural expression

Applications of AI Emotion Recognition and Sentiment Analysis

There is a growing demand for various types of sentiment analysis in the AI and computer vision market. While it is not currently popular in large-scale use, solving visual emotion analysis tasks is expected to greatly impact real-world applications.

Opinion Mining and Customer Service Analysis

Opinion mining, also known as sentiment analysis, isn't just about what people say – it's about understanding how they feel. Traditionally, this focused on analyzing text data like reviews or articles. However, the rise of visual content like images and videos on social media has opened the door to **visual sentiment analysis**.

This is a game-changer for businesses. Imagine being able to measure your brand reputation and customer reception not just through words, but also through facial expressions and emotions. Here's how opinion mining is transforming customer service:

Double-Edged Sword: Sentiment analysis benefits both businesses and customers.

- **Boosting Customer Service:** AI can analyze the emotions behind customer interactions, be it voice calls or in-person chats. This allows businesses to improve service by providing targeted support with empathy and tailoring interactions to each customer's emotional state. For example, AI can identify frustration and prompt the representative to use a more calming approach.

- **Understanding the Customer Journey:** Imagine analyzing customer behavior in stores. By analyzing expressions, businesses can understand if the shopping experience is positive or negative. This valuable insight can help improve store layouts, product placement, and overall customer experience.

Turning Opinions into Action: Opinion mining goes beyond measuring brand sentiment. It provides actionable insights that can be used to:

- **Improve Advertising:** Targeted advertising campaigns can be created based on customer emotions. Imagine showing happy customer testimonials to potential buyers.
- **Enhance Product Development:** By analyzing customer reactions to visuals of new products, businesses can identify potential issues and refine their offerings before launch.

Opinion mining is no longer a "future technology." It's a powerful tool that businesses can leverage today to gain a deeper understanding of their customers, improve brand reputation, and ultimately drive customer satisfaction and loyalty.

Medical Sentiment Analysis

Medical sentiment classification traditionally focused on analyzing text data related to a patient's health status, medical conditions, and treatment. This information is crucial for various applications like mental health treatment, remote medical services, and improving human-computer interaction in healthcare settings.

However, the rise of Emotion AI is revolutionizing this field. This advanced technology goes beyond simply understanding the content of a patient's message. It can also **detect and interpret their emotional state** from textual data, such as feedback forms, social media posts, or even chat conversations with virtual assistants.

The Power of Emotion AI in Healthcare:

- **Personalized and Empathetic Care:** Imagine doctors who can understand not just a patient's medical condition, but also their emotional response to it. Emotion AI can detect emotions like anxiety, frustration, or satisfaction in a patient's words. This allows healthcare providers to personalize care plans, address concerns with empathy, and create a more supportive environment.
- **Early Intervention for Distress:** By analyzing emotions alongside traditional sentiment analysis, Emotion AI can identify potential red flags early on. For example, it might detect signs of distress in a patient's communication, allowing for timely interventions and potentially improving patient outcomes.
- **Monitoring Mental Health Trends:** Tracking emotional patterns in patient data can help healthcare professionals monitor mental health trends within a community. This valuable information can be used to allocate resources effectively and develop targeted mental health programs.

- **Assessing Treatment Effectiveness:** Analyzing patient emotions after treatment can provide valuable insights into the effectiveness of different therapies. This allows doctors to personalize treatment plans and improve overall patient care.
- **Enhancing Doctor-Patient Communication:** By understanding a patient's emotional state, doctors can tailor their communication style to foster better understanding and trust. This can lead to more productive conversations and ultimately, a more holistic and emotionally attuned healthcare experience.

Emotion AI is transforming the way we approach healthcare. By delving deeper into patient emotions, it has the potential to personalize care, improve patient outcomes, and create a more supportive healthcare environment for everyone

Similarities between Sentiment Analysis and Emotion AI

Sentiment analysis and emotion AI are closely related within the field of natural language processing (NLP), both aiming to analyze human language to understand feelings and attitudes. Despite their distinct focuses and objectives, they share several similarities.

Both sentiment analysis and emotion AI seek to comprehend the subjective aspects of human communication. Sentiment analysis primarily classifies overall sentiment in text as positive, negative, or neutral. Conversely, emotion AI identifies and categorizes a wider range of specific emotions across various forms of communication, including text, speech, and facial expressions. Both techniques leverage NLP, machine learning, and text analytics to analyze and classify human language, extracting and interpreting emotional cues. They complement each other by providing a comprehensive understanding of human emotions and attitudes.

While sentiment analysis captures general opinions and attitudes, emotion AI delves deeper into recognizing specific emotions. Together, they offer valuable insights into the subjective aspects of human communication, enhancing our ability to understand and respond to people's feelings and attitudes effectively.

Difference between Sentiment analysis and Emotion AI

Imagine trying to understand someone's feelings. Sentiment analysis is like gauging their overall mood – happy, sad, or neutral. It analyzes text to classify the general emotional tone, whether it's positive feedback, a scathing review, or a neutral statement. This is helpful for tasks like understanding customer satisfaction or brand perception.

Emotion AI, on the other hand, is more like reading someone like a book. It goes beyond basic sentiment to identify specific emotions. It can recognize happiness, sadness, anger, fear, surprise, and even subtler feelings like frustration or excitement. It analyzes not just text, but also speech, facial expressions, and even body language (in some cases) to understand a person's emotional state.

Here's a breakdown of the key differences:

- **Focus:** Sentiment analysis looks at the big picture – the overall feeling. Emotion AI dives deeper, identifying specific emotions.
- **Techniques:** Sentiment analysis often uses simpler methods. Emotion AI leverages advanced tools like machine learning and deep learning for more accurate results.
- **Data Sources:** Sentiment analysis typically relies on text data. Emotion AI can analyze various sources, including text, voice, and even visuals.

Conclusion

In conclusion, both sentiment analysis and emotion AI offer valuable tools for understanding human emotions expressed through text and other forms of communication. By leveraging these AI techniques, businesses and organizations can gain deeper insights into customer behavior, brand perception, and overall user experience. Sentiment Analysis tells you if something is generally positive, negative or neutral while Emotion AI tells you exactly how someone feels – happy, frustrated, surprised, and so on. Both these AI tools are valuable. Sentiment analysis provides a quick understanding of overall mood, while Emotion AI offers a richer picture of the emotions at play. This deeper understanding can be used in various fields, from improving customer service interactions to monitoring mental health.

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Indian Financial System & Financial services

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Abstract

The traditional Barter system had many issues in it as it was an unorganized system. Barter system continues to exist in some form in the rural areas. This Barter system is also seen in the form of exchange offers in the urban areas as well. However, this system provides the foundation for the current monetary exchange system, which is now called the Indian Financial System.

This chapter covers in detail the definition and significance of Indian Financial system. The chapter covers savings and investments in detail, the subtle differences and how they come together to mobilize the funds. The components of Indian financial system are understood in detail, the role played by each component to contribute to the economy is highlighted. At the end of the chapter, the user will have a complete understanding of the Indian financial system.

Economic growth of any country is greatly dependent on the smooth and efficient functioning of the financial system. An efficient financial system is a well-structured mechanism that allows the smooth flow of funds between entities, who owns surplus funds and those with deficit. Financial system plays catalyst to the lenders and borrowers, which contributes to economic and industrial development in any country. The financial system is a complex structure with multiple systems and subsystems. These institutions enable the transference of funds between lenders and borrowers efficiently. The entire process of economic growth begins with savings, which is integral to every household. These savings may be invested with a view of creating long term wealth. The process of savings and investment is briefly discussed as part of the chapter. The components of the financial system include multiple sub-systems, which plays an integral part in fund mobilization, allocation and capital formation. The chapter covers in detail the components, and sub-components to gain in-depth understanding. The efficient transitioning of funds and their effective disbursement to industrial activities contributes to overall economic growth.

1. Importance of Financial system

The stability and consistent growth in an economy is an important aspect for any country, this can be achieved only with an efficient financial system. Various economic units such as Government, Corporates and Household contribute to the development of the country, these economic units depend on the financial system for effective fund mobilisation which will enable economic value creation. An efficient financial system

will ensure smooth flow of funds from facilities which have the surplus to facilities with a deficit.

The financial system is a complex setup of sub-systems including intermediaries, services and markets which endeavour to mobilize savings and route them towards investments. Funds are allocated and invested between economic units which conduct activities such that they are placed in a surplus/deficit / balanced budgetary situations.

There are five key proponents that ensure the able functioning of financial system; they are as listed below

1. **Public finances/debt management** - Excessive debt could harm the economic strata and impact the growth pattern. There is a need to manage and balance debt effectively. Interest rates are key tools that issued to manage / balance the public debt. The regulatory authorities may intervene to alter Interest rates (which will affect the public borrowing rates / yield) to curb the money supply in the economy.
2. **Technology and logistics for stable/safe mobilization of funds** - The safety standards need to be of optimal quality to ensure that the system does not face downtime during cash transference. Also, there is a need to ensure that the system is not vulnerable of hacking and other harmful exercises. So necessary steps need to be taken to provide optimal safety standards.
3. **Financial institutions with domestic and international orientation** - Network is key for economic development for the free economy to thrive and grow. The financial institutions should be well connected within its own country and with other nations with whom it conducts trade operations. This will increase the market efficiency and strengthen the financial system, which will wade through crises with its own might and minimal regulatory / Government intervention.
4. **Central banking authority to regulate and manage financial institutions and intermediaries** - Despite a free economy, there is a need for a regulatory authority to watch over the proceedings of the financial system. There may be times when necessary factors need tweaking to change the course of the economy. Extreme fluctuations may cause depression or inflationary scenarios which could last for long periods. This aspect ensures that the financial system does not fall apart during extremely tough situations across the globe.

5. **Regulated securities market** - Securities market transactions takes place based on information disseminated. Any disparity of information could lead to substantial chaos in the market which could bring operations to temporary halts. The regulatory authorities ensure that there is an authentic flow of information and there is no indulgence in unfair practices. They also thrive to standardize and reduce time for the clearing / payment / settlement process. Also, they are watchful of the transactional costs incurred and try to minimize the costs. Such practice strengthens the financial system substantially. This component being one of the largest contributors for substantial mobilisation of funds and overall economic growth.

The smooth functioning of these components in a financial system will ensure that capital mobilization and allocation is happening efficiently, thereby ensuring economic growth over the long term. The financial system can contribute to globalization by ensuring ease of operation across borders and by enhancement of growth prospects, which will attract foreign funds.

2. Functions of Financial system

Financial system is an institutional framework which exists within in economy to enable financial transactions. It is a vehicle for the economic growth of the country. The below figure 1.1.1 illustrates the functions of financial system



Figure 1.1.1: Functions of Financial System

The functions of financial system are discussed briefly

- **Mobilizing funds** - In a financial system, savings of households/individuals are channelized to business entities to carry out business operations.
- **Capital formation** - Every business entity needs money. The savings of households are transformed into capital and supplied to business entities through banks and financial institutions.

- **Funding** - Payments and receipts are facilitated by efficient technology, cashless/digital payment and receipts are facilitated by debit/credit cards, mobile applications. The financial system has created the capital economy where cash is exchanged per unit of product/service procured. Going cashless is only an extension of growing efficiency and technological enhancements in the country.
- **Risk management** -Risk management is one of the critical functions of a financial system. No business is safe. When the financial resources are deployed in a business, the money is exposed to the risk factor. For example, Fire, theft, accidents, natural disasters etc. Financial system offer the mechanism to hedge risks arising due to investing in financial instruments
- **Fund disbursement** - Financial systems budget the capital received such that the economic growth projection is optimal at acceptable risk levels. This will help optimize the growth prospects for the country.
- **Economic development** - Efficient mobilization and seamless flow of funds from entities with the surplus to entities with the deficit will enhance the economic growth of the country. India is a mixed economy where the regulatory body (Central bank - Reserve Bank India (RBI)) intervenes to influence the macroeconomic variables which alter the growth path of the economy.

3. Saving and Investment Process

Savings may be understood as the unspent portion of your net income. The amount remaining in hand from your net income after paying off all immediate and actual expenditures is termed as savings. Keynesian economics defines savings as, "amount left over when the cost of a person's consumer expenditure is subtracted from the amount of disposable income he earns in a given period of time".

Savings can be held in the form of cash in hand or cash at the bank. Savings amount is typically deposited in a savings account which offers the flexibility of withdrawal at any given point in time. Companies I Corporate may choose to operate via current account since these offer overdraft facilities.

In mathematical terms, the equation that best defines savings is stated below: **Savings = Net Income**

- Actual expenditure

Investments

Savings when parked in any financial instrument with a view to generating income is termed as an investment. From an economic perspective, investment refers to parking funds for the creation of wealth for future. These investments are essentially purchased of financial instruments which cannot be consumed immediately. The financial instrument bought now is intended to be sold at a higher price in the future, the difference between the cost price and the sale price resulting in a profit (income generated from the investment).

Importance of savings and investments

Savings is necessary to cater to the unforeseen circumstances that may arise; these could be the arrival of unexpected guests, medical emergencies, and invitations to functions etc. For example, in an Indian household, savings may also be set aside to buy some expensive item. Buying it with the entire monthly income may distort the budget considerably; hence, saving on a monthly basis to buy the expensive item would seem like an ideal means to achieve this. Savings may also be set aside for vacations, festivals — these are expenditures which may require planning in advance.

Investments are important for the society at large, they are important for the individual, the business environment and the Government. Investments contribute to economic growth, any country that is efficiently able to channelize savings into attractive investments. It benefits the individual to park his savings in investments since it enables him to earn handsome returns which could be used to fulfil his financial goals. The investment so parked is disbursed to industries that use these funds for manufacturing goods/services, which are sold in the market.

Any individual who intends to create wealth over time should consider investing, mere savings will not suffice. Savings can only accumulate funds while investing can build wealth. From the perspective of economy, a balance has to be maintained between savings and investing for optimal growth of the economy. Excessive savings will lead to unemployment (there will be no funds for industries), while excessive investing will lead to inflation (lesser spending will drive the prices upwards).

4. Process of savings and investing

The process of savings and investing leads to capital formation. Below figure 1.1.2 illustrates the pictorial representation of how capital formation happens in the financial system —

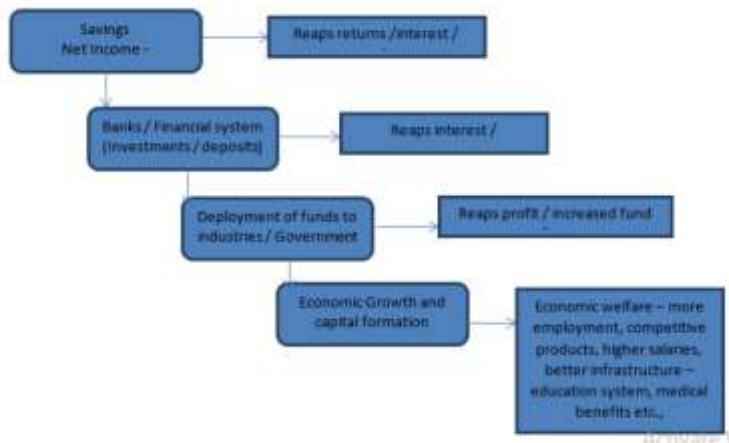


Figure 1.1.2: Pictorial representation of how capital formation happens in the Financial System

5. Below is a brief explanation of the entire process

- The savings and investment process begins with net savings being deposited in a bank or invested in a financial instrument in return for returns in the form of interest/profit or capital appreciation (wealth formation).
- The amount so deposited in the bank or in any financial instrument circulates within the system to reach entities that are in need of funds to carry out commercial activities. They are lent to corporates, industries or Government. This lending of funds results in the financial intermediary earning an interest or commission.
- The funds so deployed are engaged in activities to produce commercially viable products/services. These products are sold with a profit margin, thus the entity earns profits and enough credibility to attract funds from more sources which can enable them to expand their operations.
- This process results in capital formation, which leads to the economic growth. The benefits are passed on to the residents by means of increased trade activity, which leads to increased employment. Competitive products are available at attractive prices, and the salaries are increased to retain talent. The Government is also able to improve the infrastructure - provide better education system, roads, connectivity by increased public transport, extending medical facilities etc.

6. Conclusion

- A system that allows an exchange of money/funds among borrowers, lenders and investors is considered a financial system.
- An efficient financial system will ensure smooth flow of funds from facilities which have the surplus to facilities with a deficit.
- Savings may be understood as the unspent portion of your net income.
- Financial instrument can range from equity, bonds, real estate, gold or alternate investments.
- An efficient financial system is key to economic growth
- Financial system enables mobilization of funds, efficient allocation to industrial activities which results in capital formation
- Savings and investments are two different aspects within the financial world. Savings serve the purpose of funding emergency requirement; investments ensure that there is creation of wealth in the long term
- There are four vital components within the financial system - Financial institutions (banks & NBFCs, Insurance, Mutual funds), Financial markets, Financial instruments and Financial services
- Each of this component is further divided into sub-systems which are regulated by authorities
- The banking institutions are regulated by Reserve Bank of India (RBI), the highest authority in the financial system
- Various financial instruments available with varied risk / return profiles, based on risk appetite, investor could choose the right avenue

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Consumer Satisfaction Factors in Transportation and Distribution Components of Online Shopping Company

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Abstract: The commercial business model has changed to electronic market channels and electronic distribution. Electronic commerce (E-commerce) and shopping online generate profits and reduce costs. Many businesses are creating new channels using digital network technology. This research explores the factors and indicators of customer satisfaction for transportation and distribution in an online shopping company. Survey research and exploratory factor analysis (EFA) is applied to analyze the data collection concerning Chinese customers in Thailand who have used the services of an online shopping company. This research tested the results for validity, reliability, and Kaiser-Meyer-Olkin (KMO) statistical approach. Factor loadings confirm the factor explanations and the common threshold of 0.7. Furthermore, customer satisfaction in transportation and the distribution management model achieves with the three main factors and fifteen key indicators. The three factors are the Responsibility of Product and delivery in transportation and distribution, customer services in transportation and distribution, and customer communication in transportation and distribution. These fifteen indicators and the information are to improve the e-commerce business model to create a competitive advantage and increase market share.

Keywords:

Customer satisfaction indicators; Transportation; distribution; shopping online; electronic commerce (e-commerce).

1. Introduction

Transportation and distribution management of online shopping involves outbound logistics. The main activity on online shopping chain mainly supports reducing the total cost of the chain and increasing customer satisfaction with the support of online shopping. Online shopping is the creation and implementation of chain, customer and delivery time to develop competitive advantage. Transportation costs and inventory distribution are in the strategic plan in the new era, customer behavior and lifestyle is changing according to the hustle and bustle of everyday life. What's more, traffic and travel in the city is the main reason for change in people's lifestyle. As a result, online selling through e-commerce has gained significant traction for managing online spend.

Case Study The company is the largest 3C online shopping business platform in China's B2C market. This company manages integrated logistics, standard delivery and third-party logistics (3PL). This case is a famous online shopping business platform in China which is last mile delivery, which is the process of transportation to the final consumer and direct contact with the customer. However, this company found problems that require improvement in its online customer service system. These cases are non-complete remittance and

The delivery speed showed that the delivery speed was better on other platforms. However, most customers do not take the time to wait for their products. Often, transportation and delivery carry their products during daytime hours when most people work. This failed delivery may result in missing goods, which will increase the company's expenses on paying customers. Thus, customer satisfaction factors in transportation and distribution need to improve the customer service system for online shopping to gain market share, customer satisfaction and competitive advantage. Therefore, this research investigates the factors and indicators that influence customer satisfaction in transportation and delivery for an online shopping company

2. Literature reviews

2.1. Transportation and distribution of shopping online

Logistics and supply chain focuses on transportation and distribution activity that impacts online shopping and e-commerce business. The last mile delivery process has originated from online shopping which requires improvement in delivery efficiency. Moreover, this process helps the company to survive in this market. On the other hand, online shopping involves the adoption of new retailer models that have shown a new way of operating from physical product stores to online products.

These new channels are for customers to assess purchases and door-to-door delivery. Potential challenges should lead to changes in retailer operations and improvements in transportation and distribution associated with the chain.

Many researchers have reviewed and studied the transportation and distribution of online shopping. Online shopping portals provide many benefits to traditional retailers in terms of marketing collaboration, site traffic generation, website management, fulfillment services and the ability to offer multi-channel retailing to customers.

Service Point is the main CDP in the Netherlands for B2C e-commerce logistics. Dutch consumers most frequently use service points for online orders. However, retailers operating service centers may gain additional revenue. Price has a moderating effect on customer's online shopping behavior, hence the study of e-service quality and customer's perceived value affects customer satisfaction and loyalty. This study found that high value customers.

Factors influencing satisfaction and loyalty in online grocery shopping using an integrated model. The assortment of products was found to significantly impact ease of use and usefulness. The findings also highlight the importance of entertainment and economic value, which are key

variables shaping buyer satisfaction and purchase loyalty behavior. Showed support in urban delivery of online grocery orders. The integration of these three data sets serves as input for the vehicle routing model that builds.

This is followed by the joint distribution problem under the single decision-maker assumption. Evaluation of e-service quality, e-satisfaction and e-loyalty indicates that all previously latent constructs.

2.2. Customer satisfaction factors in transportation and distribution of shopping online company

In previous research, the assessment of customer satisfaction factors in transportation and distribution of an online shopping company yielded customer satisfaction indicators of transportation and distribution management. Documentary analysis uses to analyze data to develop customer satisfaction indicators in transportation and distribution. A literature review of transportation and distribution concepts, satisfaction upgrading, service quality and measurement of e-commerce were the concepts included and analyzed using content analysis.

3. Methodology

3.1 .Research design and population

The purpose of survey research was to collect a sample of data from the population. The research design was in two phases. In the first step, content analysis evaluates and develops customer satisfaction indicators in transportation and delivery of online shopping using literature review approach in previous research. For the second phase of this research, exploratory factor analysis (EFA) was conducted for these indicators, which analyzed the common factor model of distribution of customer satisfaction transportation and online shopping.

The population included in this study included Chinese customers in Thailand who have used the services of an online shopping company that served as a case study. Based on the number of Chinese citizens in Thailand, which included 24,703 respondents in October 2020, a simple random sampling method using probability sampling was selected. The sample size in this study included 394 respondents, with a determination of 95% and a margin of error of 5%, which used Taro Yamane's computational formula.

These in conduct for the customer satisfaction factors in transportation and distribution of shopping online, as shown in Table 1.

Table 1. Customer satisfaction indicators in transportation and distribution of shopping online

Domain/ Smart port indi cators	Reference										
	Mentzer et al. (1989).	Morga nosky and Cude (2000).	Shun & Hua. (2018).	Yu (2010).	Chang & Wang (2011).	Lim and Shiode (2011).	Chiang (2012).	Sreeram et al. (2017).	Kumar and Kashyap (2018).	Zissis et al. (2018).	Khan et al. (2019).
1. Product delivery is fast and punctual.			x	x	x	x	x				
2. Product arrival at the sched uled time			x	x		x					
3. Excha nged Product on delivery	x	x	x	x							
4. Product correct delivery	x	x	x	x	x				x		x
5. Product good pack aging delivery			x	x	x	x				x	

Table 2. The results of Kaiser-Meyer-Olkin statistic (KMO) and p-value

Kaiser-Meyer-Olkin Measure of Sampling Adequacy	0.932
p-value	0.000

Table 3. The results of variance and cumulative percentage of factors

Factors	% of variance	Cumulative %
1	36.338	36.338
2	36.121	72.458
3	26.887	99.345

3.3. Data collection

A 5-scale rating questionnaire was applied in data collection to elicit the critical opinion of the respondents. The questionnaire is from validity and reliability point of view. These questionnaires inquired about the major customer satisfaction factors in transportation and

delivery of online shopping; a case study. The two sections were the General Customer Questionnaire (7 items) and the Fifteen Key Indicators of Customer Satisfaction in Transportation and Distribution (15 items).

There were 394 respondents among Chinese customers in Thailand who have used the services. These included a case study of an online shopping company. The majority of respondents were female, 57%, and 46.5% were between the ages of 21–40. The total number of respondents with bachelor's degrees was 53.75%, and 72.75% were office workers. Online shopping experience revealed that 42% had 2-10 years and 41.5% had 5-10 years. 54.5% online shopping, 3-5 times and 40% online shopping payment was 200 - 500 yuan per month.

4. Finding and discussion

The results of this research are in two sections, including exploratory factor analysis (EFA) results and a conceptual model of customer satisfaction in transportation and distribution management. This first section shows the correlation analysis (Table 2), variance and cumulative percentages (Table 3), loadings of indicator analysis and the effects of the measurement model, leading up to a first-order factor measurement model for customer satisfaction in transportation and distribution. This second section shows business management models for online shopping to improve customer satisfaction in transportation and distribution operations; Key factors and indicators can gain competitive advantage to increase market share, profits and customer loyalty.

4.1. Exploratory factor analysis (EFA) results

The purpose of the correlation analysis was to assess the factor analysis. All indicators of each factor trace the relationship between them. The Pearson correlation coefficient was significant ($p < 0.05$), while the Kaiser–Meyer–Olkin (KMO) test value was 0.932 and the p-value was 0.000, as shown in Table 4. These results showed that all the indicators were significantly related to each other. Thus, the principal components method for these factors was to examine the direction of grouping related indicators into factors.

The cumulative percentage explains the variance spread among the three factors. The cumulative variance was 99.345%, which was high enough to exist at a high cumulative rate to obtain an acceptable fit. Therefore, the results shown in Table 2 are meant to be explained by three factors. Factor 1 and Factor 2 represent high variance percentages of 36.338% and 36.121%, which is consistent with Factor 3, which showed a variance of 26.887%.

The measurement model for customer satisfaction in transportation and distribution surveyed exploratory factor analysis with principal component extraction and varimax rotation. The factor assessment presented three factors and indicator loadings indicating the correlation of factors to indicators. These high-value loadings are in Figure 1; All loadings were significant above acceptance 0.7.

Therefore, these indicators were approved and correlated well with common factors. For example, PD1-PD6 signaling factor 1 (PD-TD), latent factor from CS1-CS6 to latent factor 2 (CS-TD), and CC1-CC3 to latent factor 3 (PT-T

5. Conclusion

5.1. Theoretical implications

Customer Satisfaction in Transportation and Distribution Management provides three factors and fifteen-item measurement indicators to assess customer satisfaction in transportation and distribution performance. The observed results recommend fifteen measurement indicators that explain three factors: responsibility in transportation and distribution, customer services in transportation and distribution, and customer communication in transportation and distribution. This factor model demonstrated an excellent fit for all indicators examined and can measure customer satisfaction in transportation and delivery performance by increasing online transportation usage with market growth and service level.

5.2. Managerial implications

Guideline management of customer satisfaction growth focuses on the core activity of building satisfaction for an online company to achieve higher competitive advantage and customer loyalty towards a brand. Therefore, key factors 1 and 2 should achieve satisfaction creation in transportation and distribution performance, while factor 3 is necessary to achieve additional satisfaction in transportation and distribution performance.

Thus, businesses should consider three factors, fifteen indicators and strategic planning for transportation and distribution policy and operational planning to improve the efficiency of transportation services to customers and build competitive advantage.

5.3. Limitations and perspectives

This research focuses on the key factors and indicators of customer satisfaction in transportation and distribution, aiming to find these indicators for strategic planning to increase customer satisfaction efficiency and formulate operational plans in the next phase. The study found Chinese consumers to be the dominant customer demographic in Thailand.

The main customers are women between 21-40 years old, and most are office workers, but do not analyze key factors and indicators with customer segmentation. Future research will explore the relationships between key factors and indicators along with other business factors. Furthermore, the customer segmentation will analyze key factors and indicators to create best value-added and customer satisfaction practices.

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The Role of Software Testing in Game Development

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ABSTRACT:

It is a complex process that involves many elements such as graphics, gameplay, sound and over all presentation. Testing is important to identify and fix problems, ensuring the final product meets the player's needs. In this article, we will examine the importance of software testing in game development. The game development process is incomplete without playtesting because it helps identify and document bugs/bugs found in the game, including bugs where some of the game does not work well. For example, game applications crash when you first open the site. Let's examine some gaming errors to help you understand why it's important to test a gaming app before releasing it.

KEYWORDS: Game Testing, Software Testing, Game Bugs, Game Tester.

1. INTRODUCTION:

The gaming market continues to grow and the video game market is expected to reach \$268 billion by 2025, up from \$178 billion in 2021.

North America stands out and is also the region with the highest gaming revenue. Despite growth in Asia Pacific, the industry remains global.

People have to spend a lot of time and hard work to make their gaming apps stand out. As a multi-billion dollar business, the role of a professional gaming testing platform is clear.

Site evaluation can improve user experience for various operating-

browser combinations. What is playtesting? Game testing is a software testing process used to test gaming applications for bugs or viruses. Since gaming apps are available on multiple platforms, including PCs, consoles, mobile devices, and tablets, testing ensures that your game meets the standards of all users.

In addition, your game application can be used on all devices, operating systems or browsers, tablets, mobile devices (phones), etc. It is also guaranteed to work smoothly. When testing video games, software developers focus on things like error codes, completions, inconsistencies, inconsistencies, and inconsistencies.

Despite these conditions, game testing also allows developers to understand threats that may come to the market.

Some of these are:

- Is it easy to access and control the game application?
- Does the game have a designer?
- Does the software appeal to a niche audience?
- Are there any distractions or music in the background?

2. Types of Game Testing:

One third of the world's population is addicted to gaming applications. That's why you should make sure that all new games are tested properly. Game testing of various types is important in this regard.

2.1. Functionality Testing

The test function checks whether the game application works as expected. This includes scores, game algorithms, user access, backgrounds, game graphics, content, etc. It means that all important features such as are working as they should. Test cases are created from different scenarios in real time to test various functions, from basic to advanced functions.

Functional tests have advantages over in-game tests: -

- Helps analyze the game.
- You can be sure that the game is completed according to the required information.
-

Factors that help determine the effectiveness of games include visuals, sounds, graphics and texts that attract users' attention.

- Network problems, system configuration, etc. functionality testing can be tested and solved.
- Automate your testing workflow

2.2. Compatibility Testing

Considering compatibility issues is another concern when testing gaming platforms because it is important to make the application compatible with a variety of devices such as mobile phones and PCs. Graphics issues, hardware or software, and timely troubleshooting are important to help users have a good gaming experience. Analyzing a compatible game across different platforms can increase revenue.

Cross-

browser compatibility testing helps determine the compatibility of gaming applications with real cloud computing devices across different browsers. QA can run application tests on these devices or run application tests through Appium. They can leverage a variety of debugging and testing options to run tests, record and report results, and instantly reduce errors.

2.3. Regression Testing

Backtesting is another type of testing done by testers of a gaming app or website to recheck the finished product and impact from scratch. It is also important whether any errors or defects appear

ar during testing. Therefore, whenever a new line of code or functionality is added to a gaming application, backtesting helps eliminate any bugs that make their way into production.

Advantages:

- Repeat previous test.
- Help compare previous results with current results and detect errors if any.
- Important for Quality Assurance (Quality Control).
- Save time by identifying in the first stage errors.

2.4. Localization Testing

Local testing is an important strategy when it comes to targeting games for international markets. You should try everything from game content to titles and text on the real device. It should be easy to read by many users from different countries. It should be specific to the target Arab region (right-to-left support, MENA region (Middle East / North Africa), two directions), so-called localization test and time locale/date, currency, address and local regulations.

2.5. Security Testing

It is an important part of game testing that can identify security issues in the game. It also detects threats from application hijackers, viruses, and unauthorized access to sensitive data. The main reason for security testing is that third-party accounts may contain viruses that need to be removed immediately. Otherwise, crash problems or hack attacks will occur.

2.6. Performance & Load Testing

These tests determine the security and performance of your application based on its proper functioning. It has many products:

- Load testing
- Stress testing
- Stability testing
- Capacity testing
- Concurrency testing

Browser stacked cloud of real devices makes QA Application performance testing possible. Real-time browsers, devices and platforms ensure performance through rigorous testing.

3. Requirement of Investing:

3.1. Quality Assessment

Every gaming app developer wants to provide the best user experience for their clients or customers. Hiring a leading game testing platform like Browser Stacking is one of the best ways to achieve this. QA engineers will intelligently evaluate the quality of your application by identifying defects and weaknesses.

3.2. Video Game Ranking

Testing games from trusted cloud platforms can impact video games. When a new game is released, intense testing and depth affects how consumers view the game. Quality Assurance staff will evaluate the list in detail before reaching a final conclusion.

3.3. Optimize Improvement Areas

Most video game applications receive constant updates as they are released. Many game companies are also considering releasing sequels and series. Testing the game from a reliable platform easily identifies weak areas that need improvement to extend the life of your business.

3.4. Increased Accuracy via Regression Testing

Reuse can lead to many experiences where flaws or errors go unnoticed. Therefore, automation is king when it comes to regression testing and visual testing of visual assets like gaming applications.

3.5. Better Cross-device coverage

Nowadays, it is very important to publish your game application on different platforms, whether console, desktop or mobile. The main problem here is the device breaking down. This bug is obvious on mobile devices: There are hundreds of different Android phones, and Apple releases a new iPhone almost every year.

4. Testing Impact on Gaming Platform:

4.1. Improve Gameplay:

Testing has been done to ensure that the game mechanics work as expected. It helps identify issues like unresponsive controls, AI behavior issues, and balancing issues.

4.2. Enhance Graphics and Audio:

Testing helps uncover visual and audio defects such as texture issues, poor image quality, and audio-related issues. High-quality graphics and sound are essential for immersion for the player.

4.3. Stability and Performance:

Testing helps you find performance vulnerabilities and security issues. This is important to prevent crashes, frame rate loss, and other performance-related issues.

4.4. Multiplatform Compatibility:

Many games are developed for different platforms such as PC, consoles and mobile devices. Testing to ensure the game runs well on all intended platforms.

4.5. Online Play and Multiplayer:

In online multiplayer games, it is important to conduct extensive testing to ensure a smooth gaming experience for all players.

5. Prerequisites for Game Testing:

5.1. Requirement Elicitation

Playtime begins with understanding all aspects of the game. This includes the number of characters in the game, the content behind the game, the principles, and the tools that can be used.

5.2. Preparation & Design

Understanding what is required makes it easier for QA to create a good game plan. This step involves preparing a detailed document containing all the details of your playtesting strategy.

For example, timing points, no. Cycle testing includes the types of tests to be performed, methods for detecting errors, values, risks, etc.

5.3. Designing Test Cases

Game developers often prepare a testing environment that must be performed by QA testers to begin validating the game. QA experts prepare cases for successful testing procedures.

5.4. Performing Game Test Cases

This phase involves testing the game on different websites and this helps in identifying various bugs in the product. Sometimes testing is alpha, beta and content testing.

5.5. Reporting Test Outcomes

In this important step, an error map is written containing all errors found. This helps ensure that games delivered to customers are as bug-free as possible.

5.6. Mitigating the Errors or Bugs

All errors are saved as files so testers and software developers can streamline future projects. If a blocking issue is found, the entire QA team works with the game development team to discuss the bug.

6. The Game Testing Lifecycle:

Software testing in game development follows a lifecycle:

6.1. Planning:

IT testers and developers collaborate to create test plans that outline goals, resources, test scenarios, and timelines.

6.2. Testing:

Testers play the game and record any issues they encounter. They report bugs to the development team.

6.3. Bug Fixing:

The developers have resolved the reported issues and released the update for retesting.

6.4. Regression Testing:

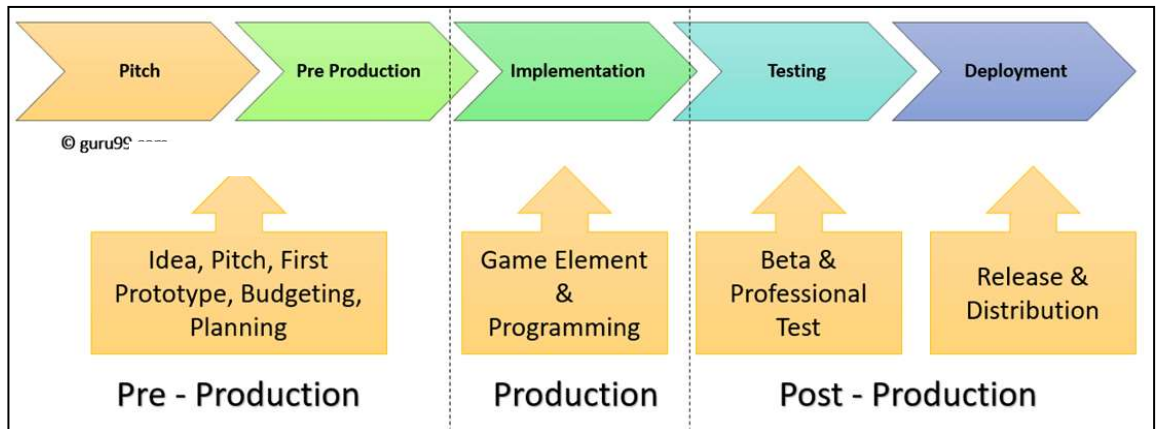
Improvement measures after each bug fix ensure that past problems are not repeated.

6.5. Acceptance Testing:

At the final stage, the game will be checked to make sure it is ready for release.

6.6. Release:

The game has been released and postrelease testing will continue to resolve any unforeseen issues.



(Figure 1: game development lifecycle)

7. Key Risks in Game Testing:

- The game does not create any interaction with the audience.
- The game has no player design.
- There is no entertainment or extra games in the game.
- The game is unique, competitive and fast.
-

The game failed due to performance issues, broken features, major bugs, bad music and bad videos.

- The cost of game development exceeds the budget.
- The design and gameplay of games should be simple.

8. Conclusion:

Software testing is an important factor in game development that cannot be ignored. It ensures that the game is bug-free, runs well, and provides players with interactivity and fun. Reviews can increase overall success and help maintain a developer's reputation in the gaming industry by ensuring it appeals to a wider audience. Game testing is an ongoing process that continues even after release to provide players with an unparalleled gaming experience and entertainment.

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Enhancing Network Security through Encryption

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Abstract

The rapid growth of network-based communication has led to an increased risk of data breaches and cyber-attacks, highlighting the need for robust security measures to protect sensitive information. Encryption, a fundamental component of network security, plays a crucial role in ensuring the confidentiality, integrity, and authenticity of data in transit. This article provides a comprehensive review of encryption techniques and their implementation in network security, with a focus on symmetric and asymmetric encryption, hash functions, and digital signatures. We also propose a framework for the effective implementation of encryption in network security, incorporating key management, encryption protocols, and security protocols. The framework is evaluated through a case study, demonstrating its feasibility and effectiveness in enhancing network security. The results of this study highlight the importance of encryption in preventing unauthorized access, tampering, and eavesdropping, and provide insights for network administrators, security professionals, and researchers seeking to improve the security posture of their organizations.

Keywords: Network Security, Encryption, Symmetric Encryption, Asymmetric Encryption, Hash Functions, Digital Signatures, Key Management, Security Protocols.

1. Network encryption

Network encryption is a method used to secure data that is being transmitted over a network, both internally within a company and externally across the internet. This is achieved by converting the readable data into unreadable data. This data can only be made readable in the format of a decryption key.

2. Objective

The main purpose of network encryption is to prevent unauthorized access to data as it moves across the network. It is crucial to protect sensitive information from being intercepted during transmission. It is commonly used in many online processes, such as online banking and e-commerce transactions, to protect data integrity and user privacy.

3. How does network encryption work?

Network encryption models vary. All include the usage of an encryption key at the network layer of the standard OSI model.

Keys are **cryptographic tools that apply encryption algorithms**. These algorithms randomly generate a series of bits and apply this series to target data. This creates "hashes" that recipients can only decode using the original key. The more advanced a key is, the harder it is to decode its encryption algorithm.

Algorithms used to encrypt data are complex. But the data encryption process is simple.

Encryption **applies above the network layer**. This is the level required to secure internet-bound and internal traffic. Specialist tools scramble data packets via keys. This generates an unreadable string of letters, numbers, or symbols.

External observers cannot read encrypted data packets until decrypted at their destination. The destination is usually another node in the internal corporate network. This could be a different branch or a co-worker's device in the same office.

Both source and destination **need the ability to decode encrypted information**. Network-wide solutions are generally preferred to ensure that all nodes have these abilities.

Data encryption to and from external destinations operates alongside internal network encryption.

Secure Sockets Layer (SSL) and Transport Layer Security (TLS) provide internet protocol security. They lie between the network layer and web servers, protecting internet traffic. Virtual Private Network services (VPNs) also apply encryption and IP anonymization.

Senders can also protect emails with end-to-end encryption. In this case, sender and recipient must use the same tools to process information in transit.

4. Benefits of Encryption

1. **Confidentiality:** Encryption ensures that sensitive data remains confidential by preventing unauthorized access.
2. **Integrity:** Encryption ensures that data is not modified or tampered with during transmission.
3. **Authentication:** Encryption verifies the identity of the sender and recipient, ensuring that data is sent and received by authorized parties.
4. **Compliance:** Encryption helps organizations comply with regulatory requirements and industry standards for data protection.

5. Types of Encryption

1. **Symmetric Encryption:** Uses the same key for encryption and decryption.
2. **Asymmetric Encryption:** Uses a pair of keys, one for encryption and another for decryption.
3. **Hashing:** A one-way encryption process that produces a fixed-length string of characters.

6. Best Practices for Encryption

1. **Use Strong Encryption Algorithms:** Choose algorithms that are resistant to brute-force attacks and have a strong key size.
2. **Use Secure Key Management:** Store encryption keys securely and manage them effectively.

3. **Encrypt Data in Transit:** Use encryption protocols such as SSL/TLS to protect data in transit.
4. **Encrypt Data at Rest:** Use encryption to protect data stored on devices and servers.

7. Conclusion:

The implementation of encryption in network security is crucial in protecting sensitive information from unauthorized access, tampering, and eavesdropping. Our proposed framework provides a structured approach to encryption, incorporating key management, encryption protocols, and security protocols. The results demonstrate the effectiveness of encryption in enhancing network security, highlighting its importance in preventing data breaches and cyber-attacks. As the threat landscape continues to evolve, the adoption of robust encryption mechanisms is essential to ensure the confidentiality, integrity, and authenticity of data in transit, and to maintain the trust of users.

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Talent Hunting vs. Talent Management: Nurturing the Heart of Organizations

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Abstract: In today's dynamic and competitive business landscape, the acquisition and retention of talent are crucial for organizational success. Talent hunting and talent management are two indispensable practices in this regard; each serving distinct yet interconnected purposes within human resources strategies. This paper presents a comprehensive comparative analysis of talent hunting and talent management, elucidating their definitions, objectives, methodologies, and impacts on organizational performance.

Talent hunting, often synonymous with recruitment or talent acquisition, focuses on identifying and attracting individuals with specific skills and competencies to fill existing or anticipated positions within an organization. It involves various proactive strategies, including sourcing, screening, and selection, to ensure a fit between the candidate and the job role. The primary goal of talent hunting is to fulfill immediate staffing needs while aligning with long-term organizational objectives. However, its scope is often limited to the initial stages of the employee lifecycle.

On the other hand, talent management encompasses a broader spectrum of activities aimed at nurturing, developing, and retaining talent throughout their tenure within the organization. It encompasses initiatives such as onboarding, training, performance management, succession planning, and career development. Unlike talent hunting, which is primarily transactional in nature, talent management adopts a more strategic and holistic approach, viewing employees as valuable assets to be cultivated and leveraged for sustained competitive advantage.

This paper explores the interplay between talent hunting and talent management, emphasizing the synergies and differences between these two practices. While talent hunting serves as the entry point for talent acquisition, talent management ensures the ongoing engagement and growth of employees, thereby fostering a culture of excellence and innovation within the organization. Moreover, the paper discusses the evolving trends and challenges in talent acquisition and management, including the rise of digital platforms, diversity and inclusion initiatives, and the impact of remote work arrangements.

Through an in-depth analysis of case studies and industry best practices, this paper underscores the importance of integrating talent hunting and talent management strategies to achieve organizational objectives effectively. By aligning recruitment efforts with long-term talent

development initiatives, organizations can enhance employee engagement, retention, and overall performance in an increasingly competitive global marketplace.

Keywords: Talent Hunting, Talent Acquisition, Recruitment, Sourcing, Screening, Selection, On boarding, Training, Employee Lifecycle, Performance Management, Succession Planning, Career Development , Employee Engagement , Diversity and Inclusion

1. Introduction

In the modern landscape of business, where competition is fierce and innovation is paramount, organizations recognize the critical importance of talent in driving success. The ability to attract, retain, and develop skilled individuals has become a strategic imperative for companies seeking to maintain a competitive edge. Central to this endeavor are two key practices within the realm of human resources: talent hunting and talent management.

Talent hunting, often interchangeably referred to as recruitment or talent acquisition, is the initial phase of the talent lifecycle. It involves the identification and attraction of individuals possessing the requisite skills, knowledge, and experience to fulfill specific roles within an organization. Talent hunting strategies encompass a range of proactive approaches, from traditional job postings to targeted headhunting and leveraging digital platforms. The ultimate goal of talent hunting is to ensure a seamless alignment between the capabilities of prospective candidates and the needs of the organization, thereby facilitating the acquisition of top talent to drive immediate performance and productivity.

In contrast, talent management extends beyond the recruitment phase to encompass a holistic approach to nurturing, developing, and retaining talent throughout the employee lifecycle. While talent hunting focuses on acquiring talent, talent management focuses on maximizing the potential and longevity of that talent within the organization. This involves initiatives such as onboarding, training and development, performance management, succession planning, and career development. By investing in talent management practices, organizations seek to create an environment that fosters employee engagement, growth, and loyalty, thereby enhancing overall organizational performance and sustaining a competitive advantage in the marketplace.

Through an exploration of real-world case studies and industry best practices, this paper seeks to equip organizations with insights and strategies to optimize their approach to talent acquisition and management. By aligning recruitment efforts with long-term talent development initiatives, organizations can cultivate a workforce that is not only capable of meeting current objectives but also adaptable and resilient in the face of future challenges and opportunities. Ultimately, in an era defined by rapid change and disruption, the ability to effectively hunt, manage, and harness talent will be a defining factor in organizational success.

2. Objective of the Study

The primary objective of this comparative analysis is to provide a comprehensive understanding of the dynamics, similarities, and differences between talent hunting and talent management within the context of modern organizational strategies. Specifically, the study aims to achieve the following objectives:

I. Clarify Definitions and Concepts: To establish clear definitions and conceptual frameworks for talent hunting and talent management, distinguishing between these two critical components of human resources strategies. By defining the scope and boundaries of each practice, the study aims to provide a solid foundation for further analysis.

II. Examine Objectives and Goals: To explore the distinct objectives and goals associated with talent hunting and talent management. By elucidating the primary aims of each practice, the study seeks to highlight their respective roles in contributing to organizational success and competitiveness.

III. Compare Methodologies and Approaches: To analyze the methodologies, approaches, and best practices employed in talent hunting and talent management. By examining the strategies utilized in each practice, the study aims to identify similarities, differences, and areas of potential synergy.

IV. Evaluate Impacts on Organizational Performance: To assess the impacts of talent hunting and talent management on organizational performance, productivity, and sustainability. By examining empirical evidence and case studies, the study seeks to elucidate the direct and indirect effects of each practice on key performance indicators.

V. Explore Integration and Alignment: To investigate opportunities for integration and alignment between talent hunting and talent management strategies. By identifying areas of convergence and potential synergies, the study aims to provide insights into how organizations can optimize their talent strategies for maximum effectiveness.

VI. Identify Emerging Trends and Challenges: To identify emerging trends, challenges, and opportunities in talent hunting and talent management. By examining factors such as technological advancements, demographic shifts, and changing workforce dynamics, the study seeks to anticipate future developments and their implications for talent strategies.

VII. Provide Practical Recommendations: To offer practical recommendations and guidelines for organizations seeking to enhance their talent acquisition and management practices. By synthesizing key findings and insights, the study aims to equip practitioners with actionable strategies for improving recruitment, retention, and talent development efforts.

By fulfilling these objectives, the study seeks to contribute to the body of knowledge surrounding talent hunting and talent management, ultimately empowering organizations to build and sustain a competitive advantage through effective talent strategies

3. Research Methodology

This Research paper is based on analysis using data from secondary sources.

4. Review of Literature

Talent hunting and talent management are integral components of modern human resources strategies, each playing distinct yet interconnected roles in attracting, developing, and retaining skilled individuals within organizations. A review of existing literature provides valuable insights into the definitions, methodologies, impacts, and emerging trends associated with these practices.

Literature offers various definitions of talent hunting and talent management. Talent hunting, also known as recruitment or talent acquisition, is often described as the process of identifying, attracting, and selecting individuals with the required skills and qualifications to fill organizational roles. Talent management, on the other hand, encompasses a broader range of activities aimed at nurturing, developing, and retaining talent throughout the employee lifecycle, including on boarding, training, performance management, and succession planning.

Objectives and Goals: Scholars emphasize the distinct objectives and goals of talent hunting and talent management. While talent hunting focuses on fulfilling immediate staffing needs and ensuring a fit between candidates and job roles, talent management aims to maximize the potential and longevity of talent within the organization, fostering employee engagement, growth, and loyalty.

Methodologies and Approaches: Research highlights the diverse methodologies and approaches employed in talent hunting and talent management. Talent hunting strategies may include traditional methods such as job postings and referrals, as well as proactive approaches such as headhunting and leveraging digital platforms. Talent management practices encompass initiatives such as personalized development plans, mentoring programs, and performance feedback mechanisms.

Impacts on Organizational Performance: Studies demonstrate the significant impacts of talent hunting and talent management on organizational performance. Effective talent hunting contributes to improved recruitment outcomes, reduced time-to-fill vacancies, and enhanced workforce diversity. Meanwhile, robust talent management practices lead to higher levels of employee engagement, lower turnover rates, and increased productivity, ultimately driving overall organizational success.

Emerging Trends and Challenges: Literature identifies several emerging trends and challenges in talent hunting and talent management. These include the growing influence of digital technologies on recruitment processes, the imperative of diversity and inclusion initiatives, the rise of remote work arrangements, and the need for agile and adaptable talent strategies in response to changing market dynamics and workforce expectations.

Practical Recommendations: Scholars offer practical recommendations for organizations seeking to optimize their talent hunting and talent management practices. These recommendations include leveraging data analytics for informed decision-making, fostering a culture of continuous learning and development, implementing inclusive hiring practices, and embracing flexibility and innovation in talent strategies.

5. Findings & Conclusion

Distinct Roles and Objectives: Talent hunting and talent management serve distinct yet complementary roles within human resources strategies. Talent hunting focuses on the acquisition of skilled individuals to meet immediate organizational needs, while talent management aims to nurture, develop, and retain talent over the long term.

Methodological Differences: Talent hunting involves proactive approaches such as sourcing, screening, and selection, often utilizing digital platforms and targeted recruitment strategies. In contrast, talent management encompasses a broader range of activities, including onboarding, training, performance management, and succession planning, aimed at maximizing the potential and longevity of employees within the organization.

Emerging Trends and Challenges: Emerging trends in talent hunting and talent management include the increasing influence of digital technologies, the imperative of diversity and inclusion initiatives, the rise of remote work arrangements, and the need for agile and adaptable talent strategies in response to changing market dynamics and workforce expectations.

6. Conclusion:

In conclusion, talent hunting and talent management are essential components of modern human resources strategies, each playing a vital role in attracting, developing, and retaining skilled individuals within organizations. While talent hunting focuses on the acquisition of talent to meet immediate needs, talent management takes a broader and more strategic approach to nurturing and maximizing the potential of employees over the long term.

By integrating and aligning talent hunting and talent management strategies, organizations can create a cohesive and strategic approach to talent management, driving overall organizational success and competitiveness in today's dynamic business environment. Furthermore, by embracing emerging trends and addressing challenges effectively, organizations can adapt their

talent strategies to meet the evolving needs of the workforce and marketplace, ensuring sustained growth and performance in the long run.

The emergence of social networking sites is a boom for the marketers. The most significant element of the same is the viral element. The viral marketing approach has prompted the organizations to engage in the communication through social networking sites like facebook, Twitter, YouTube, etc. (Christian et al, 2014). This recent trend has been fueled by the growing popularity of the social networking sites. The number of users (members) on social networking sites is increasing at an alarming rate. This is increasing the potential of the viral marketing campaigns. People tend to trust others for the opinions, recommendations, and referrals, in order to learn from their experiences and also tend to share their own experiences with others. Traditionally, people used to share these opinions via personal conversations. Nowadays these personal conversations have been replaced by online conversations, facilitated by the online social networking sites.

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Evaluating the impact of fintech in the financial service industry

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FinTech, or financial technology, has become a transformative force in the financial services industry. By leveraging innovative technologies like big data, artificial intelligence (AI), and block chain, FinTech companies are disrupting traditional financial institutions and reshaping how consumers access financial services. This research paper will evaluate the multifaceted impact of FinTech on the industry, exploring both its positive and negative consequences.

1.Positive Impacts of FinTech

- **Enhanced Financial Inclusion:** FinTech solutions have the potential to reach the unbanked and underbanked populations by offering convenient and affordable financial services through mobile apps and online platforms. This can promote financial literacy, savings habits, and access to credit for previously underserved communities.
- **Increased Efficiency and Convenience:** FinTech automates many financial processes, leading to faster transactions, lower fees, and 24/7 accessibility for consumers. Mobile banking and digital payments are prime examples of this convenience revolution.
- **Improved Customer Experience:** FinTech companies prioritize user-friendly interfaces and personalized financial products. AI-powered chat bots and robo-advisors offer real-time assistance and tailored financial recommendations, enhancing customer satisfaction.
- **Innovation and Competition:** FinTech fosters innovation by introducing new financial products and services. This increased competition puts pressure on traditional institutions to adapt, improve their offerings, and ultimately benefit consumers through a wider range of choices.

2.Negative Impacts of FinTech

- **Cybersecurity Threats:** FinTech companies heavily rely on digital infrastructure, making them vulnerable to cyber attacks. Data breaches and security vulnerabilities can expose sensitive financial information and erode consumer trust.
- **Regulatory Challenges:** The rapid pace of FinTech innovation often outpaces regulatory frameworks. This can create uncertainty for businesses and potential risks for consumers in the absence of adequate regulatory oversight.

- **Financial Exclusion Concerns:** Although FinTech aims to promote financial inclusion, the digital divide and reliance on technology can unintentionally exclude individuals without access to smart phones or reliable internet connections.
- **Job displacement:** Automation through FinTech solutions could lead to job losses in the financial services industry, particularly in areas where manual tasks are prevalent.

3.The Future of FinTech

- The future of FinTech is likely to see continued growth and integration with traditional financial institutions. Collaboration between FinTech startups and established players can leverage the strengths of both, fostering innovation while maintaining stability. Regulatory frameworks will need to evolve to address the unique challenges and opportunities presented by FinTech.

4.Literature Review

- Nguyen (2022) budgetary educate or fintech companies ought to make more user-friendly fintech items and administrations so that indeed more seasoned individuals can utilize them. Furthermore, client security should to be a beat need for governments in creating countries, where individuals are thought to be less fiscally smart.
- Shubham Goswami (2022) As Fintech Portable Cash and Computerized Wallets address the Economic foundation vacuum with an imaginative innovation arrangement and empower clients to conduct money related exchanges affordably and dependably by disposing of spatial obstructions, they can be utilized to bridge the hole between managed an account and unbanked. Fintech ventures, which are respected as a few of the most noteworthy progressions in the money related division, have too clearly been driven by the development of advanced change.
- This paper investigates the fundamental Jain and Bansal (2022) the greatest social advantage of fintech is budgetary incorporation, which has advertised get to to money related administrations to a parcel of little and medium-sized firms and low-income individuals.
- Mohammad Asif, et al., (2023) illustrates how the government's center on upgrading budgetary administrations and the rise of bank accounts in India has made strides budgetary consideration. Budgetary consideration has been enormously helped by fintech companies, particularly among the center lesson. The comes about give shrewd data for decision-makers working to coordinated everybody into India's organized budgetary framework.
- Vineet Chouhan, et al., (2023) explores the impact of money related innovation (fintech) on India's conventional keeping money division. The affect of fintech on

keeping money administrations, counting client bliss and esteem recommendations, is fintech plays in the keeping money division and offers proposals for advance investigate. Inspected utilizing relapse examination and client surveys. The comes about appear that banks have profited from fintech, which has made strides benefit levels and expanded their item offers. This think about includes to our understanding of the work that

5.Objectives of the Study

- To know the factors influencing the usage of fintech.
- To analyses the customer satisfaction in using fintech products.
- To know the usage frequency of fintech products or services

6.Scope of the Study

This study will examine the multifaceted impact of FinTech (financial technology) on the financial services industry. It will explore both the positive and negative consequences, encompassing how FinTech is affecting areas like financial inclusion, efficiency, customer experience, and competition. The research will delve into how FinTech is driving innovation within the financial sector, while also acknowledging the challenges it presents, such as cyber security threats, regulatory hurdles, and potential job displacement. By analyzing these aspects, the study aims to provide a comprehensive picture of how FinTech is reshaping the financial landscape. The scope will be focused on the impact of FinTech on the industry itself, not solely on individual consumers or specific FinTech companies.

7.Conclusion

FinTech has undeniably reshaped the financial services industry, bringing both positive and negative consequences. By fostering financial inclusion, convenience, and innovation, FinTech offers significant benefits to consumers. However, addressing cyber security concerns, developing appropriate regulations, and mitigating job displacement remain crucial challenges. The future of finance likely lies in collaboration between FinTech and traditional institutions, ultimately aiming for a more inclusive, efficient, and secure financial landscape for all.

8.Further Research Areas

- The specific impact of AI and block chain technology on different segments of the financial services industry.

- The effectiveness of current regulatory frameworks in mitigating risks associated with FinTech.
- The potential impact of FinTech on financial stability and systemic risk.
- The evolving consumer behaviour and preferences in the FinTech era.

This research paper provides a framework to evaluate the impact of FinTech. Remember to consult relevant academic journals, industry reports, and reputable financial news sources to gather data and strengthen your arguments.

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Comprehensive Review and Comparative Study of Sorting Algorithms

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Abstract

Paper presents a comparative analysis of several common sorting algorithms, including Bubble Sort, Selection Sort, Insertion Sort, Merge Sort, Quick Sort, Heap Sort, Counting Sort, and Radix Sort. The comparison is based on various criteria such as time complexity, space complexity, stability, and practical performance on different types and sizes of datasets. The study aims to provide insights into the strengths and weaknesses of each algorithm, helping in the selection of the most appropriate sorting technique for specific applications.

Keywords: Sorting algorithms, Bubble Sort, Selection Sort, Insertion Sort, Merge Sort, Quick Sort, Heap Sort, Counting Sort, Radix Sort, time complexity, space complexity.

1. Introduction:

Background: Sorting is a fundamental operation in computer science, crucial for optimizing the efficiency of other algorithms and applications. Different sorting algorithms have been developed to cater to various data structures and requirements.

Problem Statement: Despite the availability of numerous sorting algorithms, there is often confusion regarding which algorithm to use in a given context.

Objectives: This study aims to compare the performance of various sorting algorithms to determine their efficiency and suitability under different conditions.

Significance: The results of this study will guide developers and researchers in choosing the most appropriate sorting algorithm for their specific needs.

2. Literature Review

Yash Chauhan & Anuj Duggal explained their understanding about sorting algorithm that Now a days, some of them compared the running time of algorithms on real computers on a different number of inputs which is not much use because the diversity of computing devices is very high. This paper compares the running time of their algorithms as a mathematical entity and tries to analyze as an abstract point of view. This paper describes five well-known sorting algorithms and their running time complexity and their stability. To determine the good sorting algorithm, the time complexity is the main consideration but

other factors include handling various data types, consistency of performance, the complexity of code and the stability.[1]

Khalid Suleiman Al-Kharabsheh , Ibrahim Mahmoud AlTurani, Abdallah Mahmoud Ibrahim AlTurani & Nabeel Imhammed Zanoon explained that It analysis the performance of these algorithms for the same number of elements (10000, 20000, 30000). For small input the performance for the six techniques is all most nearest, but for the large input Quick sort is the fastest and the selection sort the slowest. [2]

Jehad Hammad recognize the major design strategies of algorithms, including Divide and Conquer, Dynamic Programming, The Greedy-Method and Backtracking and Branch-and-Bound. The aim of this comparison between the three algorithms is to know the running time of each one according to the number of input elements. [4]

3. Methodology

Research Design: Experimental study involving the implementation and testing of sorting algorithms on various datasets.

Instruments: Programming languages and development environments (e.g., Python, C++).

Procedure: Implementation of each sorting algorithm and testing on datasets of different sizes and characteristics.

Data Analysis: Measurement of execution time, memory usage, and stability for each algorithm.

4. Result

Sorting algorithms are fundamental in computer science and are widely used in various applications. Here's a comparative study on different sorting algorithms, focusing on their time complexity, space complexity, stability, and best/worst/average case performances.

1. Bubble Sort

Number of elements	Running time (ms)
10000	1133
20000	3103
30000	5730

TABLE 5: Running Time for Bubble Sort.

Time Complexity:

- Best: $O(n)$
- Average: $O(n^2)$
- Worst: $O(n^2)$

Space Complexity: $O(1)$

Stability: Stable

Description: Bubble Sort repeatedly steps through the list, compares adjacent elements, and swaps them if they are in the wrong order. This process is repeated until the list is sorted.

Use Cases:

- Simple and easy to understand.
- Suitable for small datasets.

2. Selection Sort

Number of elements	Running time (ms)
10000	2227
20000	5058
30000	8254

TABLE 1: Running Time for Selection Sort.

Time Complexity:

- Best: $O(n^2)$
- Average: $O(n^2)$
- Worst: $O(n^2)$

Space Complexity: $O(1)$

Stability: Unstable

Description: Selection Sort divides the input list into two parts: a sorted sublist of items which is built up from left to right and a sublist of the remaining unsorted items. It repeatedly selects the smallest (or largest) element from the unsorted sublist and moves it to the sorted sublist.

Use Cases:

- Easy to implement.
- Performs well on small lists

3. Insertion Sort

Number of elements	Running time (ms)
10000	1605
20000	3678
30000	6125

TABLE 2: Running Time for Insertion Sort.

Time Complexity:

- Best: $O(n)$
- Average: $O(n^2)$
- Worst: $O(n^2)$

Space Complexity: $O(1)$ **Stability:** Stable

Description: Insertion Sort builds the sorted array one item at a time, with each new item being "inserted" into its proper place among the previously sorted items.

Use Cases:

- Efficient for small data sets.
- Useful when the array is already partially sorted.

4. Merge Sort

Number of elements	Running time (ms)
10000	728
20000	1509
30000	2272

TABLE 3: Running time for merge sort**Time Complexity:**

- Best: $O(n \log n)$
- Average: $O(n \log n)$
- Worst: $O(n \log n)$

Space Complexity: $O(n)$ **Stability:** Stable

Description: Merge Sort is a divide-and-conquer algorithm that splits the list into halves, recursively sorts each half, and then merges the sorted halves back together.

Use Cases:

- Efficient for large data sets.
- Good for linked lists and external sorting.

5. Quick Sort

Number of elements	Running time (ms)
10000	489
20000	1084
30000	1648

TABLE 4: Running Rime for Quick Sort.

Time Complexity:

- Best: $O(n \log n)$
- Average: $O(n \log n)$
- Worst: $O(n^2)$ (rare, depends on pivot selection)

Space Complexity: $O(\log n)$ (for in-place version)

Stability: Unstable

Description: Quick Sort is a divide-and-conquer algorithm that selects a "pivot" element and partitions the array into elements less than and greater than the pivot, then recursively sorts the subarrays.

Use Cases:

- Generally faster in practice compared to other $O(n \log n)$ algorithms.
- Suitable for large datasets.

6. Heap Sort

Time Complexity:

- Best: $O(n \log n)$
- Average: $O(n \log n)$
- Worst: $O(n \log n)$

Space Complexity: $O(1)$

Stability: Unstable

Description: Heap Sort converts the array into a heap structure, repeatedly extracts the maximum (or minimum) element from the heap, and rebuilds the heap until the array is sorted.

Use Cases:

- Good choice for large datasets.
- Useful when $O(1)$ space is crucial.

7. Counting Sort

Time Complexity:

- Best: $O(n+k)$
- Average: $O(n+k)$
- Worst: $O(n+k)$

Space Complexity: $O(k)$

Stability: Stable

Description: Counting Sort assumes that each of the n input elements is an integer in the range 0 to k . It counts the occurrences of each distinct element and uses this information to place the elements into the sorted order.

Use Cases:

- Efficient for sorting integers within a limited range.
- Suitable for scenarios where extra space is not an issue.

8. Radix Sort

Time Complexity:

- Best: $O(n \cdot k)$
- Average: $O(n \cdot k)$
- Worst: $O(n \cdot k)$

Space Complexity: $O(n+k)$

Stability: Stable

Description: Radix Sort processes the digits of the numbers from the least significant to the most significant (or vice versa) using a stable sort algorithm like Counting Sort at each digit level.

Use Cases:

- Useful for sorting large numbers or strings.
- Efficient for sorting integers or strings where the number of digits is relatively small.

5. Conclusion

All the six sorting algorithms (Selection Sort, Insertion sort, Merge sort, Quick sort, Bubble Sort and Comparison sort) were implemented in C++ programming languages and tested for the random sequence input of length 10000, 20000, 30000, All the six sorting algorithms were executed on machine Operating System having Intel(R) Core(TM) 2 Duo CPU E8400 @ 3.00 GHz (2 CPUs) and installed memory (RAM) 2038 MB.

The Plot of length of input and CPU time taken (ms) is shown in figure 1. Result shows that for small input the performance for the six techniques is all most nearest, but for the large input Quick sort is the fastest and the selection sort the slowest.

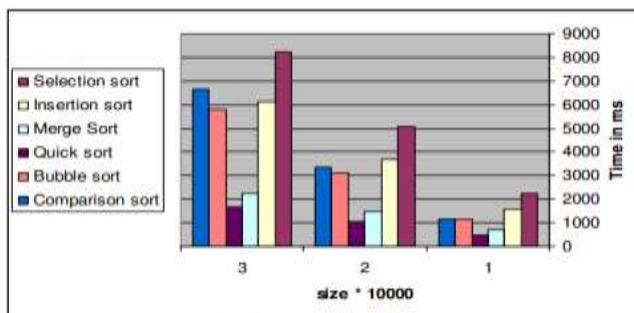


FIGURE 1 : Plot of Number of Input vs CPU.

Summary Table

Algorithm	Time Complexity (Best)	Time Complexity (Average)	Time Complexity (Worst)	Space Complexity	Stability
Bubble Sort	$O(n)$	$O(n^2)$	$O(n^2)$	$O(1)$	Stable
Selection Sort	$O(n^2)$	$O(n^2)$	$O(n^2)$	$O(1)$	Unstable
Insertion Sort	$O(n)$	$O(n^2)$	$O(n^2)$	$O(1)$	Stable
Merge Sort	$O(n \log n)$	$O(n \log n)$	$O(n \log n)$	$O(n)$	Stable
Quick Sort	$O(n \log n)$	$O(n \log n)$	$O(n^2)$	$O(\log n)$	Unstable
Heap Sort	$O(n \log n)$	$O(n \log n)$	$O(n \log n)$	$O(1)$	Unstable
Counting Sort	$O(n + k)$	$O(n + k)$	$O(n + k)$	$O(k)$	Stable
Radix Sort	$O(n \cdot k)$	$O(n \cdot k)$	$O(n \cdot k)$	$O(n + k)$	Stable

In this table, n represents the number of elements to be sorted, and k represents the range of the input. Each algorithm has its strengths and weaknesses, and the choice of algorithm depends on the specific requirements of the problem, such as the size of the dataset, the nature of the data, and whether stability or space complexity is a concern.

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Instructions for Authors

MANUSCRIPT STYLE

Manuscripts should be submitted in MS-Word format and typed in Times New Roman 12-point font. The submitted MS-Word file must be named as 'title of the paper'. Authors' names or identity should not display in the file name or in 'Properties' of the file. They must be single spaced (including references, appendices, tables, and figures). As reviewers often prefer to write notes on the manuscript, authors should use one inch (2.54 centimeters) margins. Every page in the manuscript should contain a short running head and the page number. Manuscript must be formatted as Justified. Pages should measure 8.5 by 11 inches. Manuscript length should be limited to 12 pages inclusive of references, appendices, tables and figures.

MAJOR SECTIONS OF THE PAPER

TITLE PAGE

Title page must include the title of the paper (not more than 15 words), authors' name(s), affiliation, email id and phone number. Other than title page, authors' name(s), affiliation, email id and phone number should not appear anywhere else in the paper.

MAIN DOCUMENT

The principle divisions of the manuscript should appear in the following order: body of the article (Abstract, Keywords, Introduction, Literature Review, Research Methodology, Analysis, Findings, Conclusion etc.), references and appendices. Abstract (limit 250 words) should be included in the main document of the manuscript. There must be title of the paper at the top of this page. Footnotes, tables and figures must be numbered with short description and must be placed within manuscript. The body of the article begins immediately on page 1. The title of the paper should appear at the top of this first page. It should be centered, bold-faced, and in all capital letters. Number all pages, including those with references.

HEADINGS

Main headings should be used to designate the major sections of an article. Within the main body of the paper, the major headings typically include such things as INTRODUCTION, METHOD, RESULTS, and DISCUSSION. Supporting material, such as references and appendices are also treated as major headings. In all cases, major headings should be left-aligned, bold-faced and typed in all capital letters. Secondary headings should be typed with the left margin, in title case (small letters with major words beginning with capitals), and in bold.

TABLES AND FIGURES

Number tables and figures consecutively (one series for tables, one for figures) from the beginning to the end of the article. Indicate the position of each in the text.

CITATIONS

Giving proper credit to the sources of original ideas and previous work is an important aspect of good scholarship. Inappropriate or inaccurate citations do not do justice to the authors cited and can be misleading to readers. Citations must be in alphabetical order.

Example: Several studies (Ferris & Kacmar, 1992; Malhotra & Bazerman, 2008; Morrison, 1993a, 1993b) support this conclusion.

Also note that two or more works by the same author (or by an identical group of authors) published in the same year are distinguished by "a," "b," etc., added after the year. If a work has two authors, give both names every time the work is cited in the text. If a work has more than two authors, use "et al." after mentioning the name of first author.

Example : Emotional exhaustion is related to work attitudes (Cropanzano and Byrne, 2003).

.. exhaustion was also related to job performance (Adams et al., 2008). (For more than 2 authors)

REFERENCES

References must be in APA style.

Examples:

Goggin, W. C. (1974). How the multi-dimensional structure works at Dow Corning. *Harvard Business Review*, 55(1): 54-65.

Katz, D. and Kahn, R. L. (1978). *The social psychology of organizations* (2nd ed.). New York: Wiley.

Duncan, R. G. (1971). Multiple decision-making structures in adapting to environmental uncertainty. Working paper no. 54-71, Northwestern University Graduate School of Management, Evanston, IL.

Wall, J. P. (1983). Work correlates of the career plateau. Paper presented at the annual meeting of the Academy of Management, Dallas, TX.

Smith, M. H. (1980). A multidimensional approach to individual differences in empathy. Unpublished doctoral dissertation, University of Texas, Austin.

APPENDICES

The appendices present lengthy but essential methodological details, such as explanations of the calculation of measures or items in a new survey instruments. Presentation should be concise but not abbreviated. Each appendix should be treated as a major heading. The title of each appendix should be typed in all capital letters, centered, and bold-faced. Multiple appendices are APPENDIX A, APPENDIX B, etc. A single appendix does not require a letter.

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