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IMPACT OF DIGITAL MARKETING ON STUDENTS' PERCEPTION IN SELECTING HIGHER EDUCATION INSTITUTES DURING COVID-19 PANDEMIC

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ABSTRACT

Digital Marketing has revolutionized the way students are inclined towards higher education and opting for these institutes. In the time of pandemic, studying this topic is of utmost relevance which can open up further research opportunities in this area. The objective of the given paper is to study the student's perception in selecting institutes for higher education. Also, the impact of digital marketing on student's perception in selecting higher education institutes during COVID pandemic has been analyzed. In this study, respondents were selected from various public higher education institutes in northern India undergoing courses from graduation until PhD. A total of 656 questionnaires (Male= 356 and Female= 300) were used to conduct the research and 32 responses were rejected because they were incomplete. The data which were collected has been organized and analyzed by using different statistical tools and techniques. On the basis of age, respondents have been classified into four categories i.e., ranging from 18-20 years, 20-22 years, 22-24 years and above 24 years. Out of the total respondents, majority of the respondents are in the age group between 18-20 and 22-24 years (29.3%), followed by those between 20-22 years (24.4%), and remaining respondents with age group above 24 years (17.1%). On the basis of data, most of the respondents were influenced by the Institutional website (81.1%), good social environment of the institution is the top most priority of the respondents (50%) in selecting the institution for higher education are some of the key findings of this study in addition to other sub findings.

KEYWORDS

Covid-19 pandemic, digital marketing, higher education.

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INTRODUCTION

In the present time, Internet is a part and parcel of everyday day life without which no activities can be imagined. In the business world, digital marketing is the prime implementation of Internet technology. By the usage of efficient search engine marketing strategies and certain keywords on a registered website, it is quite possible for more visibility of the website link to be found at the top while a search is made (Sawani D.K. & Susilo D., 2020). In addition to other sectors, higher education has been also impacted equally by digital marketing especially during the Covid-19 pandemic. Education stakeholders have left no other option except for going digitally during these lockdown situations. There has been a tremendous use of internet and mobile devices, social media etc. by these stakeholders to access information as well as for the transfer of knowledge. As students are becoming more tech-savvy, universities and colleges are facing a challenge with regards to the growth in enrolment due to the aspect of digital marketing (Martin, 2015). Sherman (2014) mentioned about challenges, both external and internal being faced by higher education institutes worldwide. From the marketing point of view, higher education institutes require to shift from attractive brochures to the presence on web in order to capture the attention of the prospective students. Universities and colleges are becoming more particular regarding spending money in recruiting digital marketing experts which helps in the placement process of the students easier. On the reverse side of the coin, increase in competition and rise in fees have compelled the students to become pickier in their choice of the institution (Sherman, 2014).

Social media is an intrinsic part of our daily lives. In addition to the goods industry, the service industry is also catered by means of digital marketing. Service product which includes educational services such as higher education institutions are competing fiercely for admitting prospective students (Prihadini D. et al., 2020). A concrete and logical Digital Marketing strategy can help with the enrollment procedure and many global institutions have already found their own way of alluring the students. In the present era, researching options of choosing a higher education institute by means of the social media is quite common. One of the institutes uses the social networking site Twitter as a medium to showcase the potential of the faculties and the achievement of the current students in order to communicate with their prospects before a campus visit. In order to drive enrollment numbers, during the annual recruitment week of a particular institute, they

have promoted their curriculum, campus culture and faculty. This is one of the finest ways to help a student in deciding a higher education institute who are quite confused in selecting one. In order for the enhancement of student engagement, a fundraiser program is hosted by students of a particular institute every year. It brings together the alumni, researchers, faculties and the students in one platform and live video streaming takes place via social networking sites in order to reach wider audience. These kinds of programs are helpful in enticing the future students to make a decision in selecting higher education institutes.

Selection of higher education institutions had a major impact on the students' perception during this period. As per the annual survey conducted by Cambridge International, 84 per cent of students resorted to a substitution in their most preferred institution destination. The reason for this choice is mainly due to uncertainty in general, travel issues, financial troubles. Owing to the ongoing pandemic scenario, bulk of the student from India had shown interest in pursuing higher education in India only (Cambridge International's Destinations Survey Annual Report).

RESEARCH OBJECTIVES

1. To study the student's perception in selecting Institutes for higher education.
2. To analyze the impact of digital marketing on students' perception in selecting higher education Institutes during COVID Pandemic.

METHODOLOGY

The primary data has been collected by asking different questions from the respondents using surveying with the help of a Questionnaire. The Secondary data has been collected from various books, journals, annual reports, magazines, newspapers, published papers, websites, etc. The study has been conducted in all over India from major public institutions. The respondents of the research study comprised of respondents starting from those enrolling at the university to that pursuing their doctoral education. The different age-groups for the study comprised of four different categories, namely, 18-20, 20-22, 22-24 and 24 and above. The questionnaire used for studying the impact of Digital Marketing on students' perception in selecting higher education institutes was based on closed type questions only. A total of 656 questionnaires (Male= 356 and Female= 300) were used to conduct the research and 32 responses were rejected because they were incomplete. Percentages were calculated for statements for the questions and displayed in the form of a table in the paper and also analysis is done and is mentioned under the results and discussion section.

REVIEW OF LITERATURE

Digital marketing is frequently referred to as 'online marketing', 'web marketing' or 'Internet marketing'. Advanced promoting is an umbrella term for the showcasing of items or administrations utilizing computerized innovations, mostly on the Internet, yet it additionally incorporates cell phones, show publicizing, and some other computerized medium (Kusumawati, 2019). The Internet has held everybody's creative mind more than ever and keeps on developing in manners that have no one would have envisioned regardless of socioeconomics, there is a longing among each age gathering to stay up with the most recent patterns on the internet (Munshi, n.d.). Human being is in habit when they are being encircled by a massive portion of promoting messages, the majority of which they don't for even a moment notice. The market is over-immersed with bunches of items and administrations, which consistently are being driven into the consideration of expected customers. Behind any market promoting exertion, there is a basic intention to construct a drawn-out relationship with the clients. In spite of the fact that maintenance of the customers relies upon meeting their expressed as well as implicit necessities by giving wanted items and offering required assistance at a reasonable value, it is the work of relationship fabricating that assists associations with grasping the purchaser brain science and discuss successfully with them (Štefko et al., 2015). Digital promoting includes the utilization of the Internet to market and sell labor and products. Digital advertising uses the force of electronic business to sell and market items (Bala & Verma, n.d.). The internet and virtual entertainment offer universities important instruments to all the more likely speak with their objective gatherings. The fundamental benefit comes from the likelihood to acquire criticism, the disservice being the inconceivability to control each part of the two-way discussion (Alexa et al., 2012).

The utilization of digital media as a mode of correspondence is progressively acquiring a spot in different ventures. This is because of the far-reaching utilization of advanced based specialized gadgets which are additionally progressively equally conveyed, and the expense of web information access is progressively reasonable. The study results show that the pattern of involving computerized media as a wellspring of data by youngsters is very high, particularly in enormous urban communities (Ramadhan & Gunarto, 2021). The customers are looking and looking through more on internet to find the best arrangement structure the dealers around India when contrasted with customary or traditional techniques. Organizations can truly profit from digital marketing like site design improvement such as search engine optimization (SEO), social media optimization (SMO), promotion of efforts, direct showcasing by email, books in the form of digital mode, optical circles and games are turning out to be increasingly more typical in our propelling innovation. It has been found that, as a whole unit is associated by means of Facebook and WhatsApp and the rising usage of virtual entertainment is setting out new open doors for advertisers using digital means to draw in the clients via computerized stage. Being familiar with purchaser's thought processes is found to be significant in light of the fact that it provides a more concrete comprehension of how clients are influenced via a store or a brand (Bala & Verma, n.d.).

Digital marketing planning is indistinguishable to some other showcasing plan, as a matter of fact it's inexorably odd to have separate designs for 'computerized' and 'disconnected' since that is not the way in which your clients see your business. (Chaffey & Bosomworth, n.d.). Because of the quick advancement of the innovation, the nonstop expansion sought after and supply, the store network stretching and the large measure of date, the main answer for face the significant changes is the computerization of the multitude of cycles. However, despite the fact that the new period of correspondence is here, expert propose that organizations shouldn't overlook customary strategies, and to attempt to mix advanced showcasing with conventional missions to accomplish their goals (Todor, n.d.). In the period of digitalization, the significance of advanced advertising has expanded over time one year to one more as a feature of the promoting procedure rehearsed by associations of any kind and any size. Considering that computerized showcasing requires the presence of a substance promoting, the achievement or the disappointment of the organization's internet based correspondence depends to a critical degree on the nature of its substance promoting (Baltes, n.d.).

To diminish the spread of the new Covid pandemic, institutions all over the globe are moving rapidly to move many courses from classes to on the internet with online computer learning (e-learning) so it turns into a mandatory instructing and educational experience for instructive organizations. Internet online based teaching is not simply putting learning materials on the web. Educators should arrange the substance and conveyance strategies for learning in new ways so understudies don't feel confined and alone in the growing experience. Subsequently, satisfactory educator information and abilities, as well as ICT devices, should be ensured, as study creators in nations where web-based learning happens. It had not spread before the COVID-19 pandemic (Ramadhan & Gunarto, 2021). The pandemic has uncovered the weaknesses of the ongoing advanced education framework and the requirement for more preparation of teachers in computerized innovation to adjust to the quickly changing training environment of the world. In the post-pandemic circumstance, the utilization of e-learning and virtual schooling might turn into a basic piece of the advanced education framework. The advanced education organizations and colleges need to design the post-pandemic schooling and examination techniques to guarantee understudy learning results and norms of instructive quality (Rashid & Yadav, 2020).

The COVID-19 circumstance has moved understudies and staff into another domain of via distance learning by means of virtual study halls. These fast changes from conventional up close and personal classes to virtual homerooms have achieved a progression of contemplations that workforce and understudies should attain a split the difference to accomplish a common and significant cooperative social space and learning. The requirement for understudy and personnel coordinated effort is basic, considerably much more with respect to grown-up students, as adaptability should be accessible for the two players to effectively connect through the web-based stage utilized. Workforce serving a different populace of institutions understudies may really consider themselves to be responders in the second-line to support understudies by means of undeniably challenging changes and assisting them with enduring during the pandemic (Neuwirth et al., 2021). Because of the emergency initiated by the Covid pestilence, developments in scholarly community and advanced education that would have regularly required quite a long because of the different disconnected regulatory guidelines are currently presented immediately surprisingly fast (Strielkowski, 2020). As per the reports by UNESCO, as on 1st April 2020, schools and advanced education institutions (HEIs) were shut in 185 nations, influencing 1,542,412,000 students, which comprise 89.4% of absolute enlisted students. Toward the start of May, a few nations, encountering diminishing quantities of cases and passing, began lifting control measures. Be that as it may, on 7 May (the hour of composing the report), schools and higher education institutions (HEIs) were as yet shut in 177 nations,

influencing 1,268,164 088 students, which comprise of 72.4% of complete enlisted students (Marinoni, n.d.). There are different customers of the higher education foundations: students, their parents, monetary allies, employees and the overall local area that is somehow affected by the educational institute movement. Normally, educational institute essential customers and target bunch are students. Simultaneously, students, as an objective gathering, should be portioned and focused on differentially as there can be: primary school students, secondary school graduates and university level graduates, and each gathering has various necessities and assumptions (Alexa et al., 2012).

Institutions involved in higher education in the nation will contend to give learning and educating climate fitting for the creation of alumni employable in industry related to information sector. Higher education in India is not reliant upon unfamiliar understudies, will be least impacted by the worldwide production network disturbance there on. From a demographic point of view, positive from the interest side, Indian advanced education foundations won't confront shortage of understudies and thus no income fall. Nevertheless, the institutional job re-imagined because of reliance on virtual homerooms and online exchanges, the expenses will be lesser, albeit the confidential foundations could charge strongly (Gurukkal, 2020). In this study plainly at the closure of universities, understudies were loaded up areas of strength for with feelings and, to a little degree, with brief happiness. Upon the start of electronic classes, the predominant feelings transformed into good ones, fundamentally hopefulness and alleviation yet additionally energy for the new experience. By far most had no trouble in changing to internet based educating, as cooperation in the class was more straightforward, basically through the potential outcomes presented by innovation, yet additionally due to the method of correspondence between the educator and the under studies. This end is as per different investigations on distance schooling and e-learning (Karalis & Raikou, 2020). This study has recognized five significant difficulties to successful web-based progress: coordinating simultaneous and offbeat devices into consistent internet based conveyance, beating boundaries to innovation access, working on internet based skills for students and workforce, defeating scholastic deceitfulness issues in internet based appraisal, and protection and confidentiality. This study likewise recognized four procedures that perhaps might be integrated into an excellent practice system for online instruction. In the first place, institutional help ought to be noticeable and complex with a specific spotlight on web based materials for improvement in learning and innovation support for understudies and staffs. Second, to relieve the impacts of any future emergencies, mixed learning ought to be embraced as an obligatory part of face to face guidance in an after Covid world. Third, preparing in instructive advances and their successful use ought to be accessible to personnel and understudies who require it. Last, the limit with respect to students to take part in web based learning networks should be improved to guarantee that a comparable feeling of connectedness can be held assuming projects change to online-just methods of conveyance (Turnbull et al., 2021).

RESEARCH METHODOLOGY

The study has been conducted grounded on both primary as well as secondary data sources. The primary data has been collected by means of survey method with the help of questionnaire. The secondary data has been collected from diverse journals, annual reports, articles, published papers and websites, etc. The study has been conducted in the selected public education institutes of northern India. The respondents of the research study comprise of students undergoing higher education at different higher education institutes starting from under-graduation to that of PhD. The questionnaire used for studying the impact of digital marketing on student perception in selected public higher education institutes during the Covid pandemic was based on close ended types. For the purpose of given study, questionnaires were shared on the WhatsApp groups as well as e-mail in google forms. A total of 656 questionnaires (Male = 356 and Female = 300) were used to conduct the research and 32 responses were rejected because they were incomplete. The data which were collected has been organized and analyzed by using different statistical tools and techniques.

RESULT AND DISCUSSION

Following results of the respondents in the selected higher education institutes has been discussed in detail:

Gender- Respondents have been classified into three categories i.e. male, female and others on the basis of their gender. Analysis has revealed that out of a total number 54.26% were males whereas 45.73% are females. The results show that male respondents are more agreeable to respond as compared to their female counterparts.

Age- On the basis of age, respondents have been classified into four categories i.e. ranging from 18-20 years, 20-22 years, 22-24 years and above 24 years. Out of the total respondents, majority of the respondents are in the age group between 18-20 and 22-24 years (29.3%), followed by those between 20-22 years (24.4%), and remaining respondents with age group above 24 years (17.1%). It has been seen that the students with age group above 24 years are comparatively lesser in number than others.

Geographical demographics- On the basis of geographical region, the respondents have been divided into five categories i.e. North-India, South-India, East-India, West-India and others. The demographic profile indicates that out of 656 respondents, most of the respondents (85.4%) are from North-India, followed by respondents from South-India (6.1%). Other states comprise of 4.3% followed by East-India (3.7%) and West-India (0.6%). Majority of the students were identified from the Northern part of the Country as the given study is confined to that particular region.

Program enrolled- On the basis of data, respondents has been categorised into four programs i.e. under-graduate, post-graduate, Doctorate/PhD and others. Most of the respondents were enrolled in under-graduate program (48.8%) which is followed by post-graduate (37.8%), other programmes (9.8%) and Doctorate/PhD (3.7%).

TABLE 1

Program Enrolled	Under-Graduate	PG	Doctorate	Others
Percentage	48.8%	37.8%	3.6%	9.8%

Information about the University/Institute- Most of the respondents (45.1%) access internet to explore information regarding the selected university/ institution followed by other sources of information. Educational websites play very imperative role in getting said information as 24.4% respondents' access websites during pandemic. Very less respondents (3.7% only) use newspaper as its delivery was affected during pandemic.

TABLE 2

Information about University/Institute	Internet	Educational websites	Newspaper	Youtube	Others
Percentage	45.1%	24.4%	3.3%	1%	26.2%

Decision about the choice of Program- On the basis of data, it has been seen that most of the respondents decide about their choice of pursuing program during their graduation (34.8%) followed by higher secondary school (29.9%) and only 8.5% respondents actually make their decisions about pursuing higher education during their secondary school time.

TABLE 3

Timing of the decision	Graduation	Hr. Sec	PG	Sec School
Percentage	34.8%	29.9%	26.8%	8.5%

Decision about the selected program- Data revealed that more than half number of respondents (61.6%) decide about the particular selected institution during Covid pandemic time only while others decide before Covid pandemic.

TABLE 4

Before/During Covid pandemic time	During Covid Pandemic	Before Covid Pandemic
Percentage	61.6%	38.4%

Influence of various sources- Data exposed that about 38.4% respondents strongly agreed that they were influenced by internet/websites for their choice of selecting institution for higher education. 45.1% respondents were influenced by their teachers, 34.8% respondents were influenced by their friends, 57.9% respondents were influenced by the parents, and 32.3% respondents were influenced by their siblings while 20.1% respondents were influenced by other people (measured using 5-point Likert scale).

TABLE 5

	Strongly Disagree	Disagree	Neither Disagree nor Agree	Agree	Strongly Agree
Internet/Websites	3%	3.7%	22%	32.9%	38.4%
Means of Teachers	1.8%	9.1%	10.4%	33.5%	45.1%
Means of Friends	4.9%	8.5%	17.7%	34.1%	34.8%
Means of Parents	3.7%	4.3%	9.8%	24.4%	57.9%
Means of Siblings	10.4%	5.5%	18.3%	33.5%	32.3%
Other means	13.4%	12.2%	20.7%	33.5%	20.1%

Other sources of motivation- On the basis of data, it has been seen that about 23.8% respondents strongly agreed that they were influenced by institutional counselor for their choice of selecting institution for higher education. 25.6% respondents strongly agreed that telephone and email contacts with the employees of the institution also facilitate their choice of selecting institution for higher education during the Covid time. Advertisements (25%) by the institutions also influence their choice.

TABLE 6

	Strongly Disagree	Disagree	Neither Disagree nor Agree	Agree	Strongly Agree
Means of School Counselor	13.4%	12.2%	23.2%	27.4%	23.8%
Means of Telephone or Email contact with the employees of the University	11.6%	11.6%	24.4%	26.8%	25.6%
Means of Education exposition/fair	11.6%	11%	23.8%	28%	25.6%
Means of advertisements from the University/ Institute	7.3%	12.2%	24.4%	31.1%	25%
Means of Internet pages	6.7%	7.3%	26.8%	27.4%	31.7%
Means of visit from the University to your School	13.4%	12.8%	22.6%	25%	26.2%
Means of visit to the university/Institute	10.4%	6.7%	18.9%	34.8%	29.3%

Factors affecting choice of institution- Good social environment of the institution is the top most priority of the respondents (50%) in selecting the institution for higher education. Institutional image and reputation (49.4%) also play important role in selecting institution for higher education. Job opportunities/placements (40.9%) are also one the factor that influences the decision of the respondents. Research quotient of the institution also influences the decision of the respondents (30.5%). Very interestingly about 14% of the respondents have no other options during Covid crisis.

TABLE 7

*Factors for the choice of the study program	Good Social Environment	Institutional Image and Reputation	Job Opportunities/ Placements	Research Quotient	No other options during Covid crisis
Percentage	50%	49.4%	40.9%	30.5%	14%

Websites influencing choice of institution- On the basis of data, most of the respondents were influenced by the institutional website (81.1%) while making their choice for the institution. 18.3% of the respondents followed careers 360 for the selection of institutions, 17.1% of the respondents were referring to shiksha.com etc. for determining their choice of the institution.

TABLE 8

* Influence of Websites	Institutional Website	Career 360	Shiksha.com	College Dunia	College Dekho
Percentage	81.1%	18.3%	17.1%	12.2%	9.1%

Ideal location for the institution- A large number of the students approximately 67.9% of the respondents preferred good facilities i.e. buildings, common areas, cafes, library reading room etc. while selecting the higher education institutes. Opting for the institution that is in the vicinity was preferred by 32.3% of the respondents which was quite logical considering the pandemic. Close to the second alternative, large and diverse social environment constitutes 31.7% of the surveyed respondents. 20.7% of the respondents prefer the selected institution to be in a big city. Least number of respondents chose to select an institution that is in a smaller place (10.4%).

Thus, from the above data analysis it has been concluded that north India constitutes majority of the surveyed respondents totaling to 85.5%. Almost half of the respondents, equaling to 49.1% are undergoing under-graduation course. Internet seems to be the prime source of data collection in the era of digitalization which is supported by our data and constitutes 45.5%. In addition to other sectors, education sector has been also influenced due to the Covid pandemic. 61.8% of the respondents chose their respective institutes during the Covid pandemic. Although decisions were significantly influenced due to Covid-19, but still parents remain the prime source of inspiration behind the choice of the study program for majority of the respondent amounting to 58.2%. The foremost importance for the selection of the higher education institute during the Covid pandemic owes to good facilities (buildings, common areas, cafes, library, reading rooms, sports facilities etc.) with 67.9% of the respondents supporting this crucial factor.

TABLE 9

*Ideal location	Percentage
Good facilities i.e. buildings, common areas, cafes, library reading room etc.	67.9%
Vicinity of the institution	32.3%
Large and diverse social environment	31.7%
Prefer the selected institutions to be in a big city	20.7%
Prefer to chose a Institution to be in a smaller place.	10.4%

Note: * marked statements deals with multiple responses from the respondents.

CONCLUSION

It may be concluded that life has become much simpler after the advent of digital marketing. Digital marketing by means of different digital channels likely, websites, social media, mobile apps, email, search engines has made the students even during the time of the Covid pandemic gather information with the click of a mouse sitting at the comfort of the home. Accumulation of knowledge of the different higher education institutes is quite easy at the present era. In this time, almost all institutions are having their presence in social media. Accessing information by connecting with the alumni and present students by means of the power of digital marketing makes a huge difference compared to the traditional way of gaining information about an institute by way of calling or by visiting a university is no more required. Last but not the least, it may be inferred that those higher education institutes lacking the proper digital marketing infrastructure has lost in the battle of the attracting the right students during the time of the pandemic.

RECOMMENDATIONS

Students should use the power of digital marketing more and more in the present era in order to get the right information at the right time as everything around the globe has gone digital. Digital marketing experts must be recruited at the universities such the whole process becomes easier to access from the student's point of view. A continuous update must be done in the respective web pages of the higher education institutes. In such a manner, students will be updated with the present ongoing scenario whether it deals with curriculum updates, faculty publications, achievement of present students pertaining to studies as well as

extra-curricular activities etc. As per limitation point of view, the study can be further expanded to other countries. Moreover, a comparison can be made between different regions of the country.

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ABSTRACT

Technology has changed the way business houses are approaching work. IT has penetrated most sectors, and we are experiencing dramatic changes in business models due to AI, ML, and Robotics implementation. Organizations are investing heavily in AI and ML tools and reaping benefits, thereby ensuring a competitive edge. The emerging technologies are substituting machines for human effort in information processing in a much faster, more accurate way, allowing business leaders to make quick and more consistent decisions by capitalizing on datasets. Artificial intelligence is changing the leadership and managerial profile landscape by using data analytics to drive superior performance. This study analyses the impact of AI and ML on leadership decision-making and business results. While the limitation of the study is that it focused only on leading Indian Corporate and MNCs. Various literature on the subject was reviewed, and scholarly conversations are recorded to understand the magnitude of change in leadership behavior and decision-making driving superior business results. The study's key objective is to collaborate evidence from the ground on leadership decision-making and analyze how technology is driving business results. Data collected from 50 participants by a simple random method using a Likert - 5 point scale, through a questionnaire comprising 20 questions proved the two hypotheses. They confirmed the findings of various empirical studies. Based on the study's findings, the research effort concluded by listing emerging trends in AI and ML in the business landscape.

KEYWORDS

cost management, capital productivity.

JEL CODE

D81

INTRODUCTION

Technology disruption has brought changes in every aspect of running a business in recent years. It has impacted every aspect, from developing an idea to bringing the idea to the market and then translating the output to cash. This includes machines and humans involved in the whole chain. The use of AI has been central to interdisciplinary scientific research, political debate, and social activism. The focus of this paper is mainly on two technologies, namely Artificial intelligence and Machine learning and to study the impact of this technology on Leadership Behaviors and Decision Making - Driving Business Results. A simple definition of AI & ML by FDA states that it is "The use and development of computer systems that can learn and adapt without following explicit instructions, by using algorithms and statistical models to analyze and draw inferences from patterns in data." (FDA Definition of AI/ML). The most popular and extensively studied automation software, AI and machine learning algorithms play a crucial role in boosting business revenue (Eigenvector, 2022).

Managers now have a new method for predicting candidates' work performance and talent thanks to AI and machine learning combined with Industrial-Organizational Psychology (Krishnan et al., 2021). Organizational leaders, HR professionals, and staff must use digital technology and its many applications, tools, and pedagogical approaches to improve people development programs. These must all be in line with the requirements of the company and organization. (Rajan and Krishnan, 2021).

Machine learning is an application or subset of artificial intelligence (AI) which enables machines to learn from data without being explicitly programmed. AI is a more significant idea that aims to build intelligent machines that can replicate human thinking capabilities and behavior. Good Leadership and governance are the key to business growth, business sustainability and people engagement. AI can play a significant role in aiding leadership decision-making for ensuring timely decisions based on facts and figures, leading to improved cost optimization and capital productivity. This technology can reduce human interface errors and ensure consistency in operations, enhancing quality and reduction of waste. AI & ML can ensure optimum utilization of manpower and financial resources. Numerous advantages of automation, cognitive technology, and data analysis employing AI algorithms include increased productivity, reduced human error, cost and time efficiency, speedier corporate decisions, consumer preference prediction, and sales maximisation. AI algorithms can place the right people in the ideal position while cutting costs and time commitment (Geetha & Reddy, 2018).

AI can bring a massive competitive edge in doing business. This itself will not suffice for upscaling a successful business. One has to re-look at the decision-making process and operations activity along with improved employee engagement. An organization has a wealth of information, but processing such large volumes of data in Manual processing of large volumes of data takes enormous amounts of time, cost, and the output is prone to errors. AI and machine learning solve this issue. The AI revolution has had a huge impact on data-driven leadership, but other aspects of good leadership, such as humility, vision, and engagement of others, must still be of utmost importance. Domain competence, decisiveness, and authority are just a few of the characteristics of effective leadership that have seen rapid, acute disruption and ambiguous change in the AI and ML age. Humility - In the age of artificial intelligence, a good leader must recognize that a person's status or level of knowledge may not preclude them from making a significant contribution. Leaders should be willing to learn new skills inside and outside the company.

Vision - In the age of AI, having a clear picture is essential since followers, subordinates, and employees are less sure of their own whereabouts, what to do, and why. The answers to these questions are intriguing and significant for leaders with a clear vision. A leader can undertake required organizational changes thanks to vision without prioritizing short-term goals. Employee Engagement: In the age of AI, leaders must be constantly involved in their surroundings. Leaders need to be active and come up with ideas to keep their people engaged, especially as things get difficult and worse. According to a number of research, HR managers believe that incorporating machine learning into the functional intricacies of their business will improve and boost the entire employee experience (Alkhazraji & Buhaliba, 2020).

LITERATURE SURVEY

Using AI in research and development can increase process, decision-making, cost, and innovation efficiencies (Liang, Al-Walai, 2021). AI is likely to replace many of the "hard" components of Leadership or those involved in the basic cognitive processing of data and knowledge (Jennifer et al., 2022). As management is

consistent, attempts to maintain the status quo, and is essentially a predictable job due to its repetition, AI will be particularly suitable for this field (David, 2020). By absorbing and learning from a significantly more extensive set of data, machine learning may give us insights for better decision-making and aid in transforming our companies. Which will be capable of producing outcomes that will enable the automation of common decisions. An enormous opportunity for efficiency benefits will result from this (Hakan, 2020). An average productivity improvement of 15% is reported by firms that have engaged in AI, according to a KPMG report titled "AI Transforming the Enterprise." Project managers at the forefront of AI and other technology commonly state in PMI's "AI@Work" study that using AI has reduced the time they spend on tasks like monitoring progress, managing documentation, and activity and resource planning (Steve, 2021). By asking the right questions and using the right delivery techniques, artificial intelligence may use critical thinking in decision-making processes and converses with statistics closely (Rose, 2016).

Eighty-five percent of PwC's most recent "22nd Annual Global CEO Survey" CEOs believed that AI would fundamentally alter how they do business in the upcoming five years. This percentage was significantly more significant in the Middle East, at 91%. More Middle Eastern CEOs (78%) believe that AI will have a greater influence than the internet. However, only 43% of respondents had implementation plans for the next three years, and another 23% had only "limited" uses of AI in their businesses. Globally, there is a general consensus that AI will be a driver for change in all seven regions, and the market for AI is predicted to add US\$15.7 trillion to global GDP by 2030. By 2030, it is projected that AI will have a total economic impact of US\$320 billion in the Middle East alone. We cannot disregard this (PWC, 2017).

While artificial intelligence has many difficulties, the technology may significantly increase productivity and reduce errors when appropriately used. An essential indicator of project quality is one of the most important advantages of using such technology to reduce mistakes, especially in software development projects where a variety of faults can be found at any time. Today's AI-based intelligent systems usually rely on machine learning. In machine learning, the system frequently makes discoveries using its prior data, commonly referred to as training data. The data collection can contain problem-specific training dates, such as those for hiring reasons; automating the entire process necessitates a training data set of interview questions for candidates (Christian, 2021).

BUSINESS GROWTH AND SUSTAINABILITY

- By using the organization database, AI can help in analyzing business-related data and provide better and more accurate insights into the business
- This, in turn, can help build business portfolios in a reliable and sustainable way
- The data predictability power of AI helps in better planning and coming out with Optimized Schedules

Large enterprise firms must establish and implement formal governance policies, procedures, and controls for AI technologies, service delivery models, and third-party suppliers. AI governance consists of designing and implementing standard operating procedures for AI in a variety of contexts, such as controlling risk, performance, and value; assisting in ensuring that sufficient levels of transparency and trust are maintained throughout the whole lifecycle; defining accountability, and establishing new roles and tasks; and educating teams across a business on their tasks and coordinating standard processes (Steve, 2021).

Some of the business benefits of AI include the quick discovery of patterns in massive data sets, quick visualisation and analytics, improved product design, the supply of in-depth insights, and many more. Higher profit margins, increased business opportunities, improved operational efficiency, and more cost-effective cost structures should all follow from these advantages (Neha et.al., 2019). Depending on the area under consideration, the prevalence of AI varies greatly. For instance, western nations and eastern Asia are where artificial intelligence is most widely used to its full potential. At the moment, machine learning is frequently used by intelligent systems that use AI (Ishaan, Krishnan, 2022).

AI is a code for a radical shift in how decisions are made because intelligent machines fundamentally alter the relationship between man and machine. The decision-making environment is evolving quickly in the digital age. The progress is being fueled by the booming data sector, which makes it possible for new business models based on Big Data and Cloud Computing (Norbert, 2020).

AI leaders will follow procedures that are geared toward directing AI machine programmers and influencing AI machine judgments after programming. AI systems still lack emotional intelligence. AI leadership will necessitate taking a step back to review and make adjustments to present influences utilized for leading humans. The AI computer uses different inputs after programming in a potential bottom-up (bottom-across? manner) to make ethical decisions. Early robot leaders might have placed more emphasis on either a leadership style that is team-oriented or authoritative. Programmers may use a team management style (high regard for people, high regard for structure) until AI-based emotional intelligence is developed. Additionally, it is projected that establishing and maintaining relationships with AI robots would shift, placing a greater emphasis on ethics and morality, maybe adopting a top-down and bottom-up Robo ethics approach (Ashley, Mark, 2018).

The platforms for development, massive processing power, and data storage that enable AI are developing quickly and becoming more accessible. AI ventures must overcome significant organizational and cultural barriers. One business experienced a substantial shift in decision-making when it replaced a complicated manual technique for event schedule with a new AI system. Expert analytics translators, a relatively new class, can help to spot obstacles. These individuals link technical data scientists, engineers, and business professionals in marketing, supply chain, manufacturing, risk management, and so forth. Translators ensure that produced AI solutions address business goals and that adoption is successful (Tim et. al., 2019).

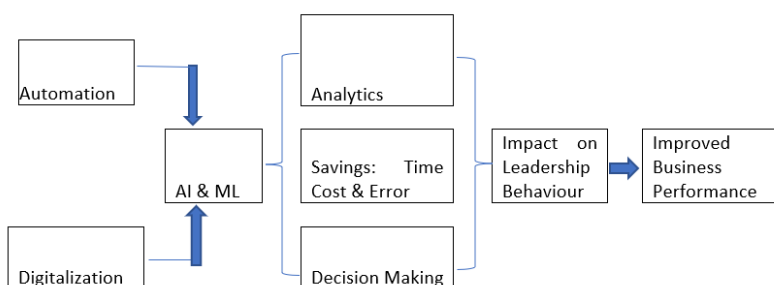
To put together cross-functional, vertically integrated teams of people, a [digital leader] will need to innovate. He will need to establish influence over unofficial teams, link networks of teams and individuals, and promote knowledge sharing in addition to advocating for a diverse and inclusive workplace.

Machines with extremely advanced mental capabilities will completely upend the knowledge work in every department of the organization. Furthermore, artificial intelligence will surpass human intelligence. (Stefan, 2016). It is asserted that algorithmic Leadership, in which machines or programmers take on tasks often performed by leaders, such as inspiring, assisting, and training employees, will likewise become more common in the future. (Marco, Karim, 2020).

Leaders need to be aware that millennials want their organizations to train them in cutting-edge technologies like artificial intelligence, analytics, cloud computing, the internet of things, blockchain, and so on and provide the opportunity to experiment with new ones (Thejovathi, Krishnan, 2020).

CONCEPTUAL FRAMEWORK

FIGURE 1: CONCEPTUAL FRAMEWORK



The necessity of automation and digitization as a prerequisite for launching AI and ML is depicted in figure 1. Automating all routine tasks makes it easier for ML and AI to generate data for analytics. Leaders will have access to data on their table for diagnosing problems, prescribing solutions, describing the issues on hand, and training resources to overcome challenges. Lastly, predicting future outcomes with the help of predictive analytics is the key to leadership decision-making. Data analytics helps reduce time and cost and also helps shape behaviors. Leaders will gain immensely with AI tools to overcome various obstacles daily, which helps enhance employee productivity and performance. Lastly, business sustainability and growth are ensured with the help of AI and ML tools in a fast-paced economy.

METHODOLOGY

A simple random sample was drawn from leading IT organizations. The organizations were chosen based on size, and their exposure to AI and ML in management. A sample of 50 was drawn and a structured questionnaire on a 5-point Likert scale was administered. Thereafter, personal interviews were conducted with all the 50 respondents over 3 months to verify the responses and understand the nature of the usage of AI and ML in their respective organizations and its positive rub-offs.

HYPOTHESIS

- H1: AI and ML tools significantly impact leadership decision making
- H2: AI and ML are directly correlated with the reduction of errors, time, and cost of decisions

ANALYSIS AND DISCUSSION

Various statistical tests were performed to analyze the data and test the hypothesis. The reliability and validity tests indicated a high degree of reliability of the questionnaire.

TABLE 1: CASE PROCESSING

Case Summary			
Cases			
	Valid	N	%
	Excluded	0	0
Total	50	100	

TABLE 2: CRONBACH'S ALPHA

Reliability Statistics		
Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	No of Items
.880	.891	20

INTERPRETATION

The case processing of 50 responses is shown in table 1. The Cronbach Alpha was calculated to calculate the co- variance of all the variables in the questionnaire (Refer to table 2). This test helps to understand how far the values are reliable. The arrived value is 0.880 shows it is highly reliable. Cronbach's Alpha Based on the standardized items is 0.891.

To examine the internal consistency of the questionnaire's variables, the Cronbach's alpha test was used. The test revealed that Cronbach's Alpha of 0.880 reliability, which is good. The questionnaire is hence valid and highly reliable for performing various statistical tests to test the hypothesis.

TABLE 3: CORRELATION OF VARIABLES

		Correlations																			
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
1	Pearson Correlation	1	.555**	.478**	.417**	.387**	.447**	.456**	.458**	.395**	.467**	.403**	.331*	.347*	.379**	.457**	.314*	.470**	.077	-.099	-.099
	Sig Level		.000	.000	.003	.006	.001	.001	.001	.005	.001	.004	.020	.014	.007	.001	.026	.001	.594	.493	.494
2	Pearson Correlation	.555**	1	.421**	.381**	.539**	.593**	.455**	.429**	.478**	.466**	.534**	.480**	.488**	.333*	.420**	.418**	.442**	-.080	-.058	.006
	Sig Level	.000		.002	.006	.000	.000	.001	.002	.000	.001	.000	.000	.000	.018	.003	.003	.001	.579	.691	.964
3	Pearson Correlation	.478**	.421**	1	.521**	.302*	.172	.210	.146	.132	.355*	.312*	.243	.261	.249	.148	.359*	.163	-.131	-.106	-.071
	Sig Level	.000	.002		.000	.033	.231	.144	.312	.361	.011	.028	.092	.068	.081	.309	.010	.258	.363	.464	.624
4	Pearson Correlation	.417**	.381**	.521**	1	.228	.200	.234	.199	.374**	.227	.459**	.334*	.278	.248	.183	.119	.359*	-.187	-.248	-.144
	Sig Level	.003	.006	.000		.111	.164	.101	.167	.007	.113	.001	.019	.051	.083	.208	.409	.011	.194	.082	.319
5	Pearson Correlation	.387**	.539**	.302*	.228	1	.565**	.402**	.537**	.494**	.448**	.583**	.411**	.423**	.279*	.291*	.292*	.371**	-.075	.135	.161
	Sig Level	.006	.000	.033	.111		.000	.004	.000	.000	.001	.000	.003	.002	.049	.043	.040	.008	.605	.351	.264
6	Pearson Correlation	.447**	.593**	.172	.200	.565**	1	.690**	.626**	.579**	.480**	.525**	.662**	.576**	.421**	.565**	.580**	.554**	-.060	-.016	.152
	Sig Level	.001	.000	.231	.164	.000		.000	.000	.000	.000	.000	.000	.000	.002	.000	.000	.000	.679	.911	.291
7	Pearson Correlation	.456**	.455**	.210	.234	.402**	.690**	1	.743**	.613**	.298*	.599**	.555**	.436**	.469**	.522**	.550**	.572**	-.047	-.067	.011
	Sig Level	.001	.001	.144	.101	.004	.000		.000	.000	.036	.000	.000	.002	.001	.000	.000	.000	.745	.645	.942
8	Pearson Correlation	.458**	.429**	.146	.199	.537**	.626**	.743**	1	.576**	.377**	.574**	.504**	.392**	.567**	.356*	.507**	.501**	.142	.154	.101
	Sig Level	.001	.002	.312	.167	.000	.000	.000		.000	.007	.000	.000	.005	.000	.012	.000	.000	.325	.286	.485
9	Pearson Correlation	.395**	.478**	.132	.374**	.494**	.579**	.613**	.576**	1	.333*	.522**	.472**	.488**	.320*	.359*	.380**	.394**	-.138	-.139	-.009
	Sig Level	.005	.000	.361	.007	.000	.000	.000	.000		.018	.000	.001	.000	.023	.011	.007	.005	.340	.337	.950
10	Pearson Correlation	.467**	.466**	.355*	.227	.448**	.480**	.298*	.377**	.333*	1	.526**	.519**	.484**	.656**	.397**	.337*	.522**	.098	-.063	-.154
	Sig Level	.001	.001	.011	.113	.001	.000	.036	.007	.018		.000	.000	.000	.000	.005	.017	.000	.499	.665	.286
11	Pearson Correlation	.403**	.534**	.312*	.459**	.583**	.525**	.599**	.574**	.522**	.526**	1	.603**	.621**	.455**	.521**	.301*	.571**	-.216	-.069	.083
	Sig Level	.004	.000	.028	.001	.000	.000	.000	.000	.000	.000		.000	.000	.001	.000	.034	.000	.132	.635	.567
12	Pearson Correlation	.331*	.480**	.243	.334*	.411**	.662**	.555**	.504**	.472**	.519**	.603**	1	.655**	.497**	.510**	.636**	.620**	-.066	-.186	.039
	Sig Level	.020	.000	.092	.019	.003	.000	.000	.000	.001	.000	.000		.000	.000	.000	.000	.000	.652	.200	.792
13	Pearson Correlation	.347*	.488**	.261	.278	.423**	.576**	.436**	.392**	.488**	.484**	.621**	.655**	1	.330*	.446**	.497**	.532**	-.095	-.178	.055
	Sig Level	.014	.000	.068	.051	.002	.000	.002	.005	.000	.000	.000	.000		.019	.001	.000	.000	.511	.216	.704
14	Pearson Correlation	.379**	.333*	.249	.248	.279*	.421**	.469**	.567**	.320*	.656**	.455**	.497**	.330*	1	.387**	.376**	.467**	-.040	.012	-.088
	Sig Level	.007	.018	.081	.083	.049	.002	.001	.000	.023	.000	.001	.000	.019		.006	.007	.001	.785	.935	.543
15	Pearson Correlation	.457**	.420**	.148	.183	.291*	.565**	.522**	.356*	.359*	.397**	.521**	.510**	.446**	.387**	1	.411**	.612**	-.150	-.183	-.249
	Sig Level	.001	.003	.309	.208	.043	.000	.000	.012	.011	.005	.000	.000	.001	.006		.003	.000	.303	.207	.084
16	Pearson Correlation	.314*	.418**	.359*	.119	.292*	.580**	.550**	.507**	.380**	.337*	.301*	.636**	.497**	.376**	.411**	1	.371**	-.083	.025	.046
	Sig Level	.026	.003	.010	.409	.040	.000	.000	.000	.007	.017	.034	.000	.000	.007	.003		.008	.569	.864	.751
17	Pearson Correlation	.470**	.442**	.163	.359*	.371**	.554**	.572**	.501**	.394**	.522**	.571**	.620**	.532**	.467**	.612**	.371**	1	.166	-.168	-.131
	Sig Level	.001	.001	.258	.011	.008	.000	.000	.000	.005	.000	.000	.000	.000	.001	.000	.008		.249	.244	.366
18	Pearson Correlation	.077	-.080	-.131	-.187	-.075	-.060	-.047	.142	-.138	.098	-.216	-.066	-.095	-.040	-.150	-.083	.166	1	.198	-.109
	Sig Level	.594	.579	.363	.194	.605	.679	.745	.325	.340	.499	.132	.652	.511	.785	.303	.569	.249		.169	.451
19	Pearson Correlation	-.099	-.058	-.106	-.248	.135	-.016	-.067	.154	-.139	-.063	-.069	-.186	-.178	.012	-.183	.025	-.168	.198	1	.297*
	Sig Level	.493	.691	.464	.082	.351	.911	.645	.286	.337	.665	.635	.200	.216	.935	.207	.864	.244	.169		.036
20	Pearson Correlation	-.099	.006	-.071	-.144	.161	.152	.011	.101	-.009	-.154	.083	.039	.055	-.088	-.249	.046	-.131	-.109	.297*	1
	Sig Level	.494	.964	.624	.319	.264	.291	.942	.485	.950	.286	.567	.792	.704	.543	.084	.751	.366	.451	.036	

INTERPRETATION

Correlation analysis was undertaken to measure the strength of the variable. The correlation coefficient ranges from +1 to -1. Here Q1 to Q17, most of the variables were positively correlated and has a higher value which clearly shows it is statistically significant and has a higher correlation between the variables (refer to table 3). In the case of Q18, Q19, and Q20, values were not higher compared to previous questions. All the 20 values were taken for the study.

TABLE 4: CHI SQUARE TEST

Chi-Square Tests			
	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	25.545 ^a	6	.001
Likelihood Ratio	22.724	6	.001
N of Valid Cases	50		

a. 7 cells (58.3%) have expected count less than 5. The minimum expected count is .30.

INTERPRETATION

Chi-square tests were performed to measure the observed and expected results. In the study, Leadership team should keep pace with the latest technology. Managers and Leaders are data-driven and make decisions with the help of AI and ML. Cross tabulation was taken for analysis. Total valid cases of 50 were taken for analysis. Pearson chi-square and Likelihood ratio – Degree of freedom is six and the value arrived is less than 0.05, which is statistically significant (Refer to table 4).

TABLE 5: MULTI LINEAR REGRESSION

Model Summary ^b									
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	.888 ^a	.788	.644	.448	.788	5.474	19	28	.001

INTERPRETATION

The model summary helps to analyze the R, R square, Adjusted R Square, and degree of freedom. To measure the strength of association between the variables, R square was calculated, R square = 0.788 (78.8%) thus, the proportion of dependent and independent variables are high. The adjusted R square value is 0.644 and the R square change is 0.788 (Refer to table 5).

TABLE 6: ANOVA ANALYSIS

ANOVA ^a						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	20.862	19	1.098	5.474	.001 ^b
	Residual	5.617	28	.201		
	Total	26.479	47			

INTERPRETATION

Regression and residual were identified to measure the significant level between the variables. The Sum of square in the regression model is 20.862, and the error value is shown in the residual as 5.617. AI and ML tool for business sustainability were taken as the dependent variable, and the remaining questions were considered as an independent variables to perform the analysis. The mean square was calculated on the basis of 20.862/19= 1.098 and 5.617/28= 0.201. From the mean value, the F value was calculated by dividing 1.098/0.21= 5.474, where F is the mean square regression. The P value is associated with the F value; the value arrived is less than 0.05, which is statistically significant (refer table 6). This shows AI and ML tools help in leadership decision-making, enhancing business sustainability and growth.

LIMITATIONS

The research remained focused on leadership decision-making aided by technology and consequent behaviors. It did not capture other leadership elements and factors that drive behaviors. The other limitation was that it was restricted only to leading IT companies based in India which use AI and ML in its day-to-day affairs. Other organizational factors impacting leadership decision-making and other leadership traits were not probed in this study.

SIGNIFICANCE OF THE STUDY

Technology is driving performance and is a game changer in the new global economy. Leadership behaviors and decisions are the keys to business success and Sustainability. AI and ML have primarily contributed to the emerging dynamics in business performance and growth. AI continues to occupy the center stage of business performance, employee productivity, and leadership decision-making; hence, an effort has been made to study the trends in AI and ML in leadership decision-making and its consequent rub on behaviors.

SCOPE FOR FUTURE RESEARCH

An effort to study various angles in terms of business impact owing to implementation of AI and ML in the employee's progression to leadership roles. Employees handling higher order activities since AI eliminates transaction focus. The degree of training required for leaders to effectively manage emerging technologies and new generation skills needed for decision making. The changing landscape of behavioral traits may also be looked at within the scope of the technology trends.

CONCLUSION

Based on the statistical analysis and in-depth discussion on the Impact of AI and ML in leadership behaviors and decision-making - Driving Business Results, we have concluded that AI and ML significantly reduce decision-making time, errors, and cost. Routine, mundane tasks being automated and reduced errors enable Leadership to focus on transformation issues rather than transactional matters. Predictability with the help of analytics is driving better decisions. New generation leaders are looking for data points with visualization applications to support them in critical findings; hence, AI is a game changer in management. The idea of a company is changing as processes are integrated into the software and more operational choices and executive actions are driven by data, analytics, and artificial intelligence (AI). Due to this, managerial tasks have changed, and numerous opportunities have arisen (Abbatiello et al.,2017). Machine learning can help with employee skill and knowledge growth by gathering data and modifying the system. Utilizing technology makes it easier to produce high-quality goods, and putting Six Sigma into practice will boost productivity and improve product quality (Poorani, Krishnan (2021). The research findings indicate the same trends and correlate with other scholarly literature. Future leaders need to be tech-savvy and take the help of AI and ML tools to drive critical decisions to ensure business success and sustainability.

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