
Artificial Intelligence with Augmented Reality: A Match Made in Paradise for Digital Marketing

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Abstract

“We are in the midst of the forth industrial revolution, after the steam power, electric power and digitalization. The forth, which incorporates Artificial Intelligence and Augmented Reality as well as other technologies will have an even greater impact”, states Klaus Schwab, the Founder and Executive Chairman of the World Economic Forum. Technology is now penetrating each and every aspect of our lives. These new technologies have been reshaping the face of modern business. Today, we humans are surrounded by numerous machines and gizmos and are familiar with the digital world. Any company now, irrespective of whenever it has been established can reach even to the most isolated of places around the world through digitalization. This has made it easier for marketers to interact with their customers and create a better and satisfying experience. And this experience can be soared even more through two emerging technologies, Artificial Intelligence and Augmented Reality. Artificial Intelligence is the ability of the computer program or a machine to think and learn. Augmented Reality, on the other hand, refers to a simple combination of real and virtual worlds. It overlays text, images or videos over real-life objects. Marketing as a process of management has seen 360 degrees change in the past few decades. Since the third industrialization has been of digitalization, the entire world has been knit into a closed digitalized globe. With the recent technological advances, marketing has been digitalized. Digital Marketing refers to the marketing of products or services using digital channels to reach consumers. Technology, of course, is both a key driver and enabler of this brave new world of digital marketing in the business world. Till now these two technologies have been used individually to improve customer experience. This paper deals with the question, “What will happen if Augmented Reality and Artificial Intelligence are combined together for digital marketing?”

Keywords: *Artificial Intelligence, Augmented Reality, Digital Marketing, Customer experience*

Introduction

Over the past few years, rapid technological advances in digitalization, data and analytics have been reshaping the business landscapes, supercharging performance and enabling the emergence of new business innovations, new forms of competition and business disruption. Yet, progression has been uneven. While many companies struggle to harness the power of these technologies, companies that are fully leveraging the capabilities are capturing disproportionate benefits, transforming their businesses and occasionally disrupting the rest.

Many big business houses adopting the latest technologies like Augmented Reality and Artificial Intelligence have been benefited by huge profits. And, according to many researchers, these technologies are at a baby step. And if at baby step they are letting the tech giants like Apple, Google earn in billion dollars, then think of these technologies reaching their peak. Here, question is not about surging technologies. This paper deals with the question, “What will happen if Augmented Reality and Artificial Intelligence are combined together for digital marketing?”

Before the inception of answering the above question, let us understand a few basic terminologies.

) Augmented Reality(AR): It refers to a simple combination of real and virtual (computer-generated) worlds. It overlays text, images or videos over real-life objects allowing an avid gamer to exist both within and out of, the video game.

) Artificial Intelligence(AI): It is the ability of the computer program or a machine to think and learn. Generally, AI means a machine which mimics human cognition.

) Digital Marketing: Refers to the marketing of products or services using digital channels to reach consumers. The key objective is to promote brands through various forms of digital media. The delivery of this objective is achieved through mobile phones, social media marketing, display advertisement, search engine marketing and other forms of digital media.

Marketing today, is no more the concept of adopting age-old techniques for attracting customers. The combination of AI and AR will give a completely new shape to marketing through digitalization. AR will create a digital imagery over real life visuals to create meaningful outcomes, whereas, an AI engine will help to enhance the customer experience by predicting and addressing their needs and wants.

This is the future of digital marketing!

Objectives of the study

This paper looks into the aspects of using technological advances in the field of marketing to improve customer experience and satisfaction levels.

The objectives of this paper are:

1. To understand the concepts of AI and AR
2. To know the importance of this mix on digital marketing

Review of Literature

From typewriters, through faxes, to computers and various wearable gadgets, technology always finds a way to sneak into business. Technological innovations have managed to drive progressive changes ever since the rise of the internet and adoption of smart devices. About 40 years ago, the business world started to experience a dramatic transformation of digitalization. Technological innovations move at a rapid pace, and we now have more power in our pockets than we had in our homes in the 1990's. AI-AR has been a fascinating concept of science fiction for decades. But now this is turning into a reality and the future is now here.

Any business organization has three basic objectives, namely, profit earning, customer satisfaction and growth and survival. Marketing is the most important process of any organization as this is the revenue generating process. An effective marketing involves making and building the customer experience. With the advent of technological advances, marketing has seen significant changes. The customers always demand more. And making the customer experience better is what all businesses strive for. A customer now is more aware and can easily shift to another brand or product if he does not derive enough marginal utility for the amount spared by him.

To improve the customer experiences, AI and AR come into picture. These technologies are recent developments and are still in pre-mature stages. Using these, tech giants are attracting more and more customers to their bases.

Many consumers like the products they buy, but some people go beyond liking. They actively advocate for the companies and concepts behind those products. Taking Apple Inc as an example and its trend-setting iPhones, celebrating their 9th anniversary on 11 July, 2017. These phones are certainly high-quality. But many consumers, bloggers, and media critics have also long raved about the firm itself and its overall design approach. Those “evangelists” don’t work for Apple, but voluntarily endorse it and its entire product line.

Many firms would love to see such enthusiasm among their customers, reviewers and retailers. But how can they create these external evangelists?

The simple answer being, create experiences a customer would never wish to forget. Imagine you are searching for a new laptop online. You are confused as to what to buy. Your mobile phone has an integrated AI technology and knows everything in detail, your likes and preference. The AI technology comes to the rescue. It scans through the web to search through various options on your behalf and coins out the best suited laptop for you, which takes into consideration all your needs: your liking, your data usage, your preferred interface and so on. Now imagine, you wish to redesign your room. Planning this out is the most tedious task and your room is very dear to you. You want it to be pitch perfect. Your mobile phone has the AR technology and can project 3D holograms. All you have to do is project a 3D image of your room. Work on this 3D projection by changing colours, adjusting various different articles and designs and see how your room would look.

Many technocrats believe that futuristic methods to create customer experiences will be soon reshaped, especially with the help of digital agents AI and AR. This reshaping of creating customer experience will not only leads to higher profits for the companies but will also take digital marketing to another level. To understand it better let us jump into the concepts.

Artificial Intelligence: Living in the future

AI powers every experience, augmenting human capability with insights and predictive power that would be impossible to achieve on our own. The rise of AI allows business leaders to enhance their customer experiences by predicting and addressing their needs and wants. To implement AI into your marketing strategies, however, it's important to understand how to properly analyse data and how AI should be integrated.



Amazon Echo: AI Redefined

The most recent example of AI is the Amazon Echo which connects you to Alexa. Alexa is a cloud based voice service used to play music, set alarms and timer, provide information, check calendars, weather, manage to-do and shopping lists, control smart home devices and more.

Imagine this scenario, a customer mentions your brand in a tweet, requesting information about the timings of one of your stores. In any normal circumstances, you'll have to go online, check the tweet, see the area the customer is referring to, check the timings and then post it. Instead of spending this amount of labour time, an instant tweet is sent out to the customer automatically with all the required details. Another customer wants to know about the availability of a product which is not in store currently. He instantly receives a personalized message with all the relevant inputs.

This is the future of digital marketing. Where no customer has to wait and instant response save the time of both the customers and the marketer. This personalized instant information can help the marketers to address the issues of their customers in a much faster and efficient manner. Since AI is integrated into the software databases of the marketer and the global internet access, the technology can personalize the information specific to each customer and provide responses as per their convenience.

Now imagine is a device which is like your personal assistant. Whatever you say, it follows. It can keep a track record of your to-do lists, manage your calendars, wake you up on time. It will remind you to finish off all the works you had planned in a day. You simply don't have to worry about forgetting things, because this device doesn't. This is Amazon's Echo, connected

to Alexa.

AI is increasingly being used for content generation, bots, messengers, image recognition, sales forecasting, media planning, customer segmentation, language recognition, ad targeting etc increasingly making us believe that there is nothing an AI cannot do.

Augmented Reality: Bringing life

You want to buy a new sofa set for your drawing room. You have two options, either go to a furniture showroom and look through many sofa sets at display and choose. Or the second and more common option is buy it online and the only problem you face while buying such things online is you cannot properly predict the size, fitting and how well would it compliment your drawing room. Now imagine you open the shopping app on your smartphone and select the sofa set of your choice. Upon selecting the same, your camera opens and through that you are see the real-life projection of the sofa set you wish to buy. The app allows you see the product you are planning to buy in your home. You can adjust the size, select the colour, customize it. Just by sitting in one place your work is done. This saves exorbitant amount of time which one can utilize in other productive works. This is the example of the IKEA AR Catalogue launched in the summer of 2013.



This is what the concept of augmented reality states; an overlay of digital imagery over real life visuals to create meaningful outcomes.

Apple's September iPhone event and Google's Pixel debut not only launched the latest versions of their smartphones, but also unveiled their foray into augmented reality. Suddenly, AR is the talk of the town.

Like Virtual reality (VR), AR is a technology that has been in development for quite a while. However, it has seen a consumer release, in the form of smartphone camera AR and a few consoles, with the most popular application of it being Pokémon Go. Like the smartphone changed our lives as we know it over the course of several years, AR is poised to shake things up in the not-so-distant future.

IKEA AR Catalogue

IKEA realized that almost 14% of its customers took over home, furniture of wrong size. In 2014 launched the first, one of its kind Augmented Reality catalogue which helps customers to virtually view a piece of furniture and using 3D technology, actually see how the product would look.



The below chart shows the revenue generated by Pokémon GO app within just one month.

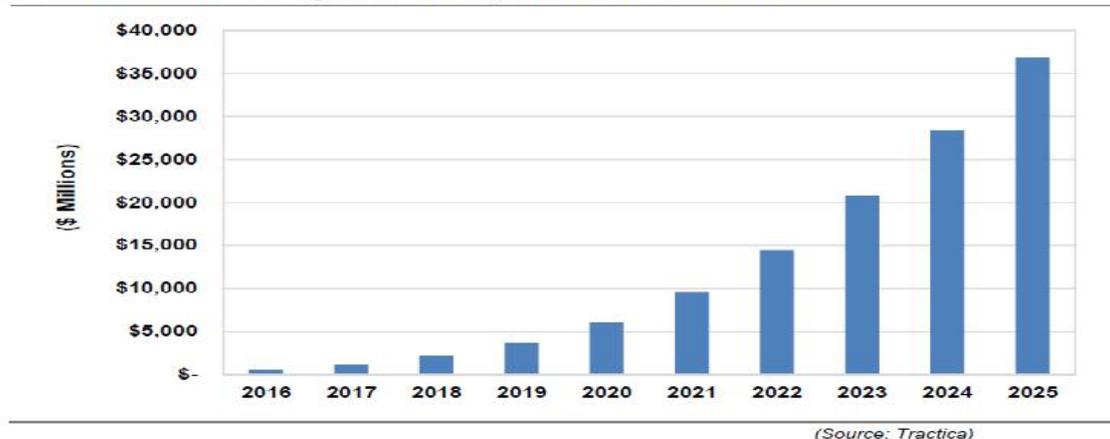
On an estimate, this app would have costed anywhere between \$100-\$120 million to create. This cost was however covered up within a months' time of its launch. This shows the power of AR and how efficient it will be in revenue generation for any company. The technology not only generated surplus revenue, it also enhanced customer experience and this game spread like wildfire.

Revenue Prospects in the future

The market of AI and AR has huge potential for growth. As these markets strive to grow, they implore businesses to adopt these technologies in their day-to-day businesses.

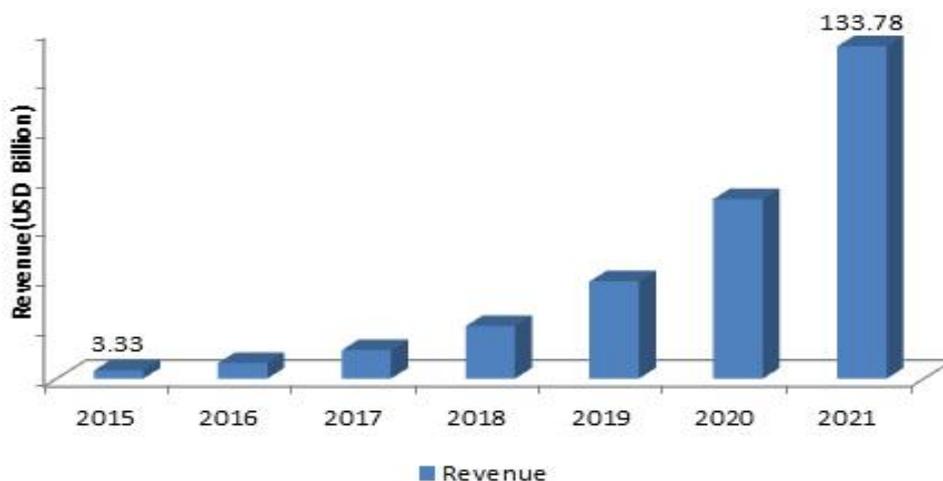
The companies that adopt these technologies will get an advantage over the others in terms on attracting customers and revenue generation. Since this is the new hotcake, the companies can tap the first mover advantage to the maximum potential. Not only will this mix make customer experience better, it will also increase new avenues for marketing of the product. With the recent digitalization trends, the entire world is hooked together via internet. For any of these technologies to prosper in the economy, the major determinant is the internet speed. With India increasing its base for internet speed, there is still a long way to go.

Chart 1.1 Artificial Intelligence Revenue, World Markets: 2016-2025



The above chart shows the estimated growth in the revenue from the AI technology at the World Market for the period 2016-2025. It is clearly seen that the market for this is expected to grow leaps and bounds and is expected to leave its footprints in every sector of life. It is believed that by 2025 this market would be a \$36,000 million market and that is just the beginning.

Global Augmented Reality (AR) Market , 2015-2021 (USD Billion)



The above graph shows the Global Augmented Reality Market for the period of 2015-2021. It can be clearly

observed that with time, this market will flourish and become a \$133.78 billion market. This only shows the potential of this technology and that this is what the future will look like.

Digital marketing: What is truly marketed

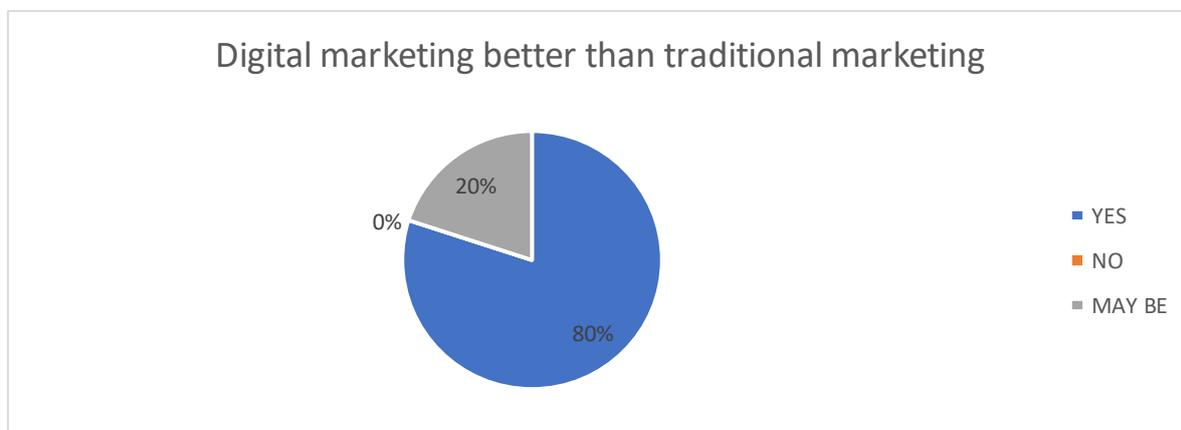
Marketing is the most important function of any organization. Every moment we are exposed to marketing of goods, services, experiences, events, information and places. What we want to see here is how AI and AR will change the face of digital marketing of these above-mentioned entities.

1. Goods- AI determines the best suited good as per your preference patterns and AR lets you have a real life look before you buy the product.
2. Services- Banking and Insurance sector can see a revolutionary change because of AR and AI. AI provides you all the information on locker services of the bank and AR shows you with the 3D projections of the safety systems the bank deploys.
3. Experiences- With AR, marketers will be able to create unique experiences for buyers in brick and mortar shops by bringing in a digital virtual element. Creating virtual tours in the store can add an element of fun while allowing AI to help buyers to learn more about products or services.
4. Events- An avid cricket fan? With the help of AR, feel as if you are in the stadium, cheering for the crowd, and let AI keep you updated with the live score feeds.
5. Information- Imagine having an encyclopaedia open up write in front of you. Choose your favourite part and make it come alive with AR; let dinosaurs walk right in front of you or walk on the surface of Mars. With AI, get all the relevant information as you walk through this experience. This technology is being put into use in the National Science Museum, USA, where 3D projections of dinosaurs are used through AR. What needs to be added is the element of AI to explain it.
6. Places- Cannot travel? Stay at home and feel as if you are on a world tour! With AR, experience 360-degree panorama view of places from around the world and let AI be your guide. Satya Nadella, in his recent book 'Hit Refresh' has stated that the idea for the Hololens came from their meeting, while discussing how the experience of the surface of Mars felt while sitting in their boardroom.

Findings and Data Analysis

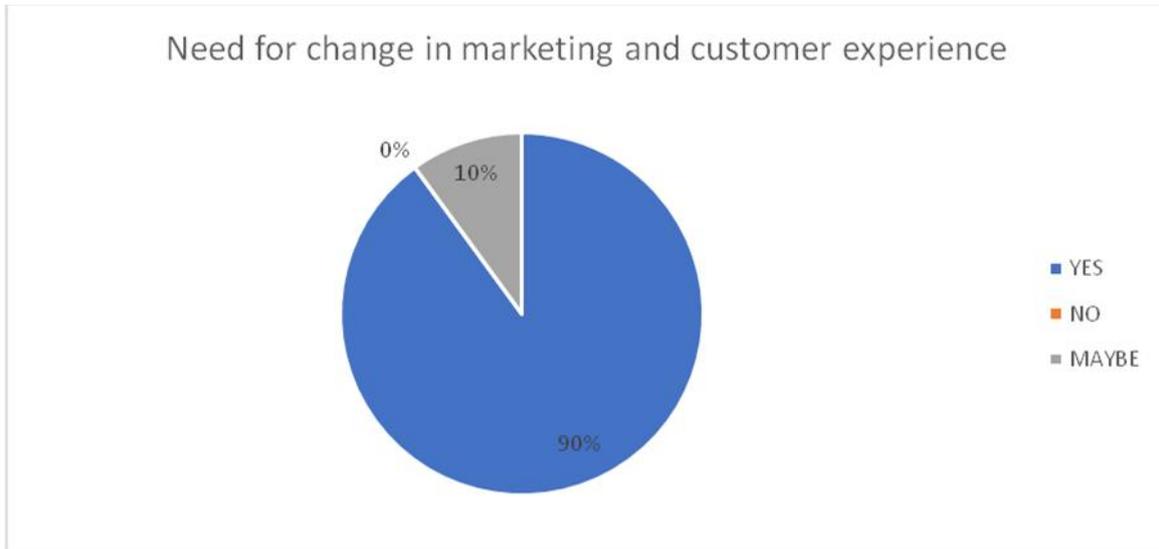
A questionnaire was circulated to 20 marketers of different companies belonging to different fields, which were, automobile, banking, textile, adhesives, IT and real estate. The questions ranged from those to know the awareness levels of the respondent on the technologies of AI and AR to their views on how useful these would be in the Indian markets. The respondents were kind enough to give us their views on what they felt could be the future of marketing in their fields of work. Below are the findings and data analysis:

1. Comparison of digital marketing with traditional marketing



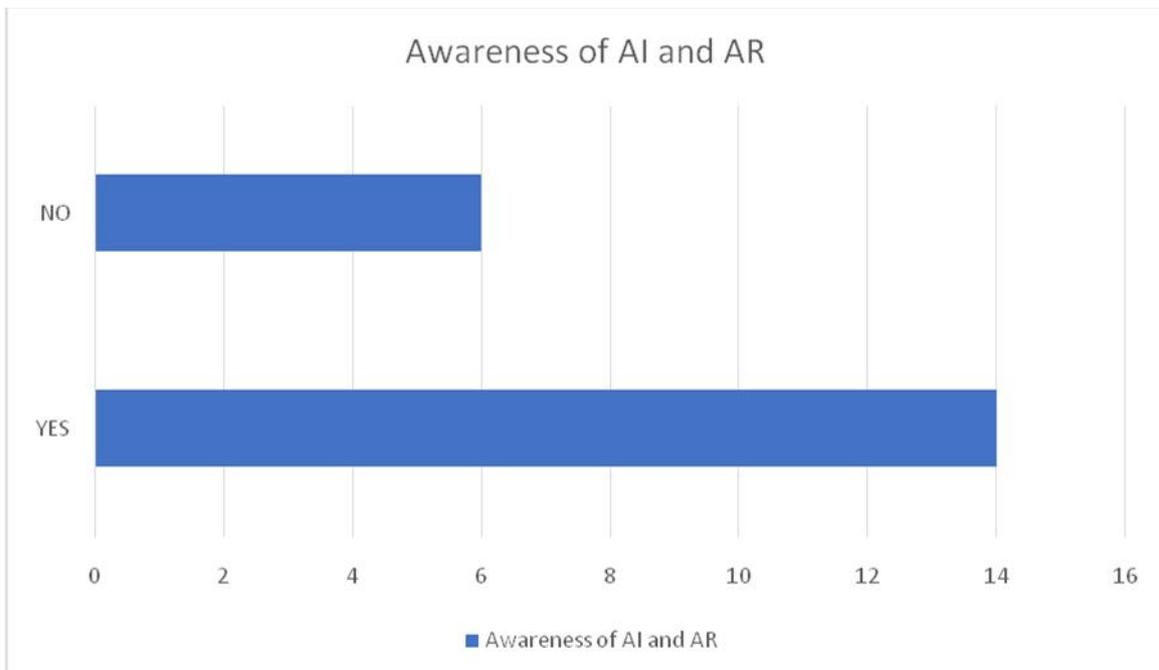
It is seen that 80% of the respondents believed that digital marketing is better than traditional form of marketing. This may be because of its feature of catering to wide masses in one go. No respondent felt that digital marketing is not better than traditional marketing. This is a positive indication for the future of digital marketing.

2. Need for a change in the marketing and improving the customer experience



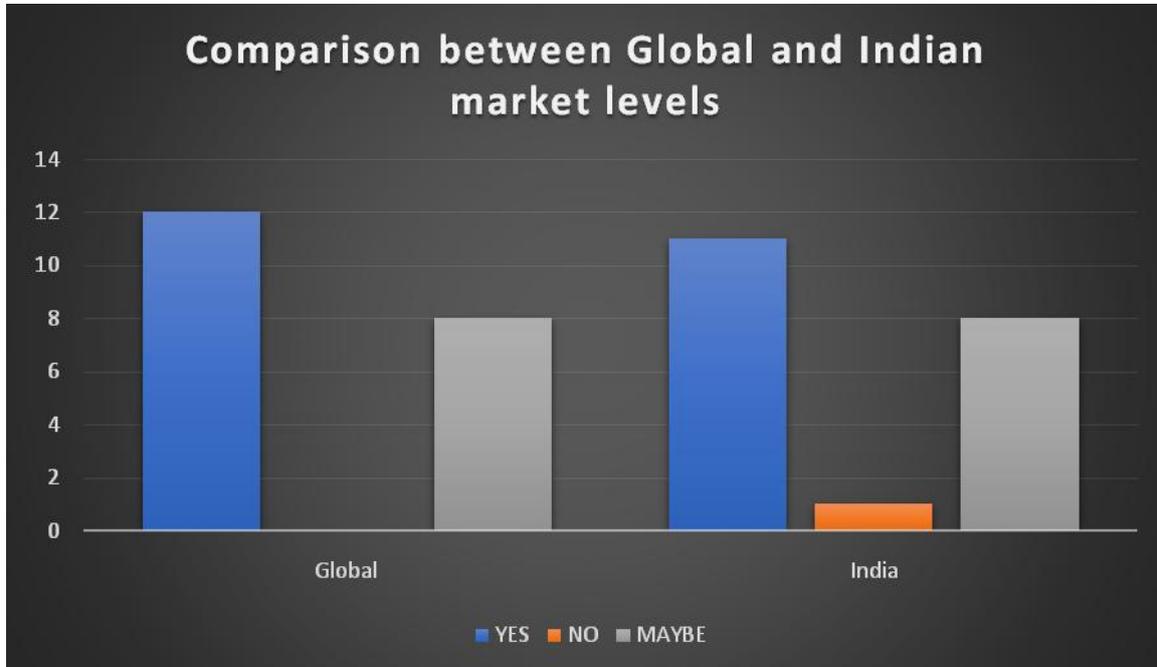
It can be known from the above graph that 90% of the respondents agree with the need for change in the marketing experience which is a strong urge for the companies to move from the present tactics to future strategies of marketing.

3. Awareness of AI and AR technology



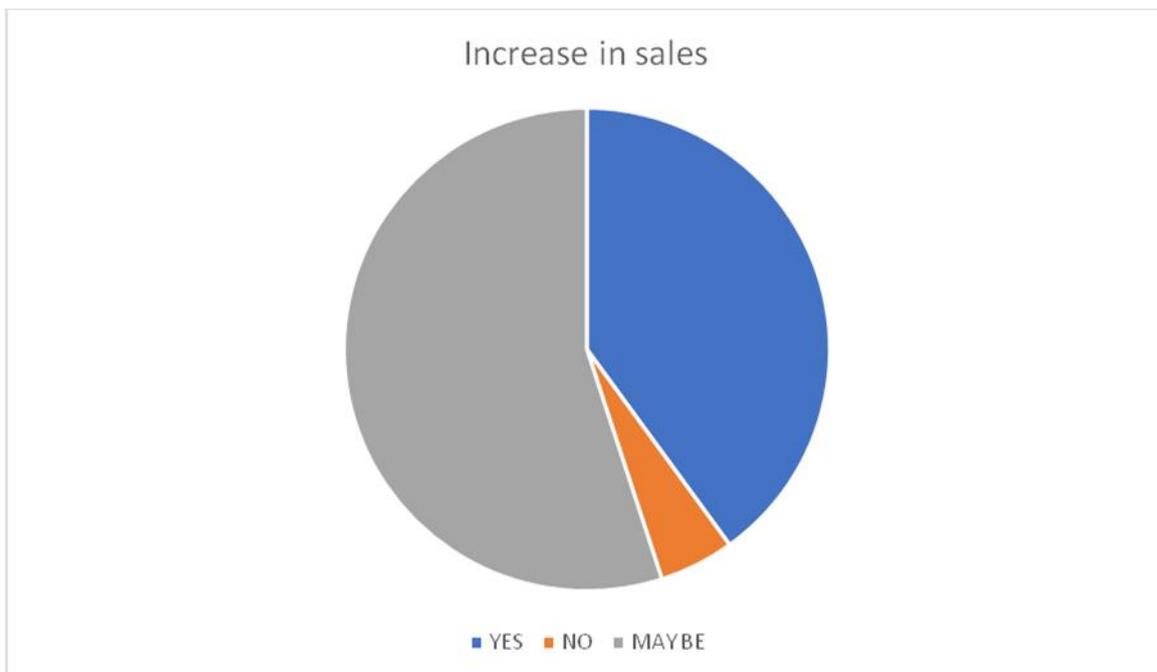
It can be seen that 70% of the respondents are aware of AI and AR technologies. This is a positive sign as these technologies are gaining momentum in the present business world. The awareness to these technologies states that the people are well aware of the recent developments in the field of technology and commerce.

4. Success of such technologies in the global market level and the Indian market level



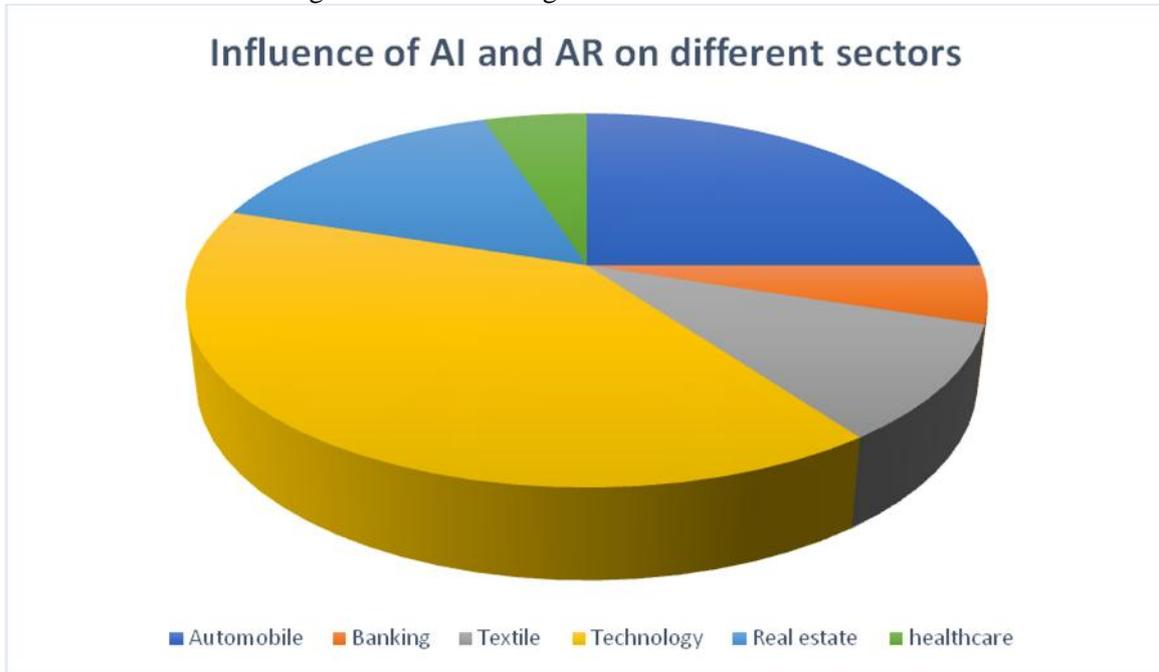
It was seen that respondent believed that this kind of technology will be more successful at the global level than in the Indian markets. 60% of the respondents believed in the success of this technology at the global market whereas only 55% believed that it will be a success in the Indian markets.

5. Increase in sales with the use of AI and AR



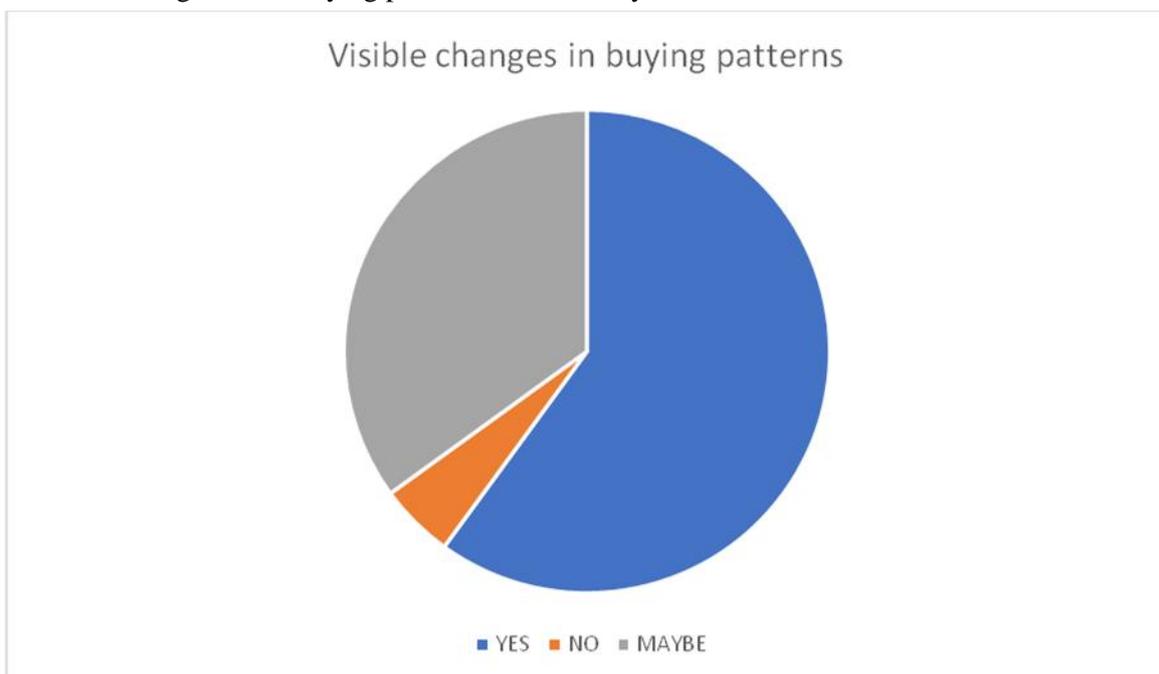
It is observed that 55% of the respondents were unsure about the use of this technology in increasing the sales of a company. Only 40% felt that this would surely increase the sales of any company by providing great customer experience.

6. Effect of these technologies in the marketing of various sectors



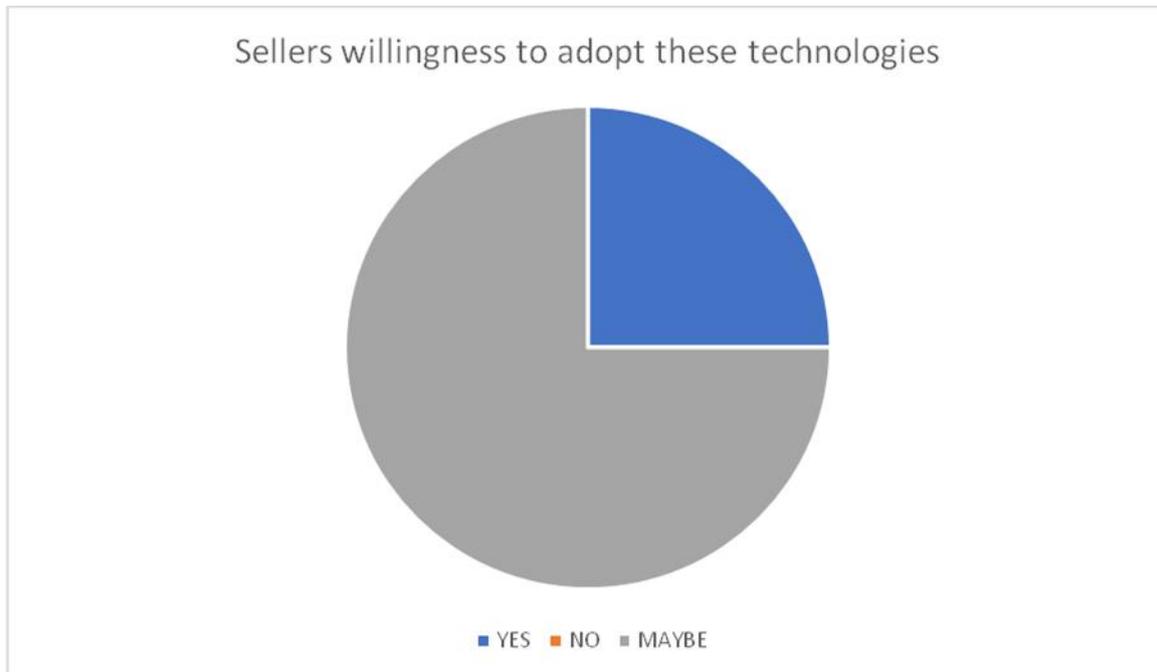
It is observed that maximum respondents sight that the technology sector will be hugely affected with the advent of this technology. However, it is also seen that respondents believed that automobile and real estate sector will also be influenced by these new technologies.

7. Visible changes in the buying pattern of various buyers in India with the advent of AI and AR



It is seen that 60% of the respondents believed that there will be visible changes in the buying patterns of the Indian customers according to the changing technologies. Only 5% responded with a no and did not agree with this.

8. Willingness of sellers to adopt these technologies into their business



When it comes to the Indian sellers adopting these technologies, 75% stated that they were unsure if the sellers would be willing to adopt them.

Interpretations

-) It is believed that maximum respondents agreed with the fact that digital marketing is better than traditional marketing because of its very own feature of catering to a wider area and that marketing techniques need a change. They believed that customer experience can be improved through the advent of digital marketing agents.
-) It is seen that 70% of the respondents are well aware of AI and AR technologies. Of these only 50% stated that they used the AI feature of Google assistant/Siri in their day-to-day life. 70% of the users of AI technology felt that this technology is a success in the present marketing scenario since it eases the life of the customers. When it comes to the technology of AR, 75% of the respondents are aware of the AR featured app/game (eg: Pokémon Go, IKEA AR catalogue etc). This is a positive sign as this new technology has just recently started to penetrate the markets.
-) It was seen as a customer, if these marketers would like to purchase products which provide you 3D projections and sort of all features and prices as per your liking for you, 75% responded positively while the remaining 25% were in a doubt. This gives a green signal to the mixture of these technologies. Of the total, 60% felt that these technologies would be a hit at the global level, however, at the Indian level, only 55% believed so. This disparity shows that it requires time at the national level to surge these technologies.
-) When asked if these technologies would act as a catalyst for growth in the sales of the company, 40% of the marketers cited a yes. These 40% belonged to the fields of automobile, technology and real estate sector. This shows that these sectors would be more than willing to incorporate these new technologies in their business to surge their sales.

-) When the Marketers were asked if these technologies would show a change in the buying patterns of Indian consumers, 60% of them stated a yes. They believed that the consumers will be more willing and attracted to the products which offer this kind of technological change.
-) However, when asked if the Indian sellers would be willing and open to accept this technology in their day-to-day working, 70% stated a may be. This shows the mindset of Indian sellers, who do not want to take sudden risks and do not prefer changes as such. These sellers would first want to see the actual success of these technologies and only then implement it from their end.

Suggestions

This study on first hand is based on our suggestion to mix the technologies of AI and AR to enhance the digital marketing world. It is seen that the technologies of AI and AR have been used individually in the business world and have proved to improve the customer experience. These technologies on an individual level are estimated to generate huge revenues in the global market. And if individually these technologies can help in earning humongous amount of money and can create a unique customer experience. Then, think of mixing of them. And hence, we have talked about the mixture of AI and AR in this paper along with expected happening when you mix them, what we have looked into. The next section deals with the future of this mix. What can be expected and what will happen, because the future is now here.

Integration of AI and AR

A big business disruption awaits. It's exciting though, especially because both of these technologies have been successfully demonstrated and applied in real world scenarios. AI automates processes via simplistic speech processing and AR manipulates information serves in a better manner. By complementing each other, these technologies can facilitate massive improvements in every walk of human life, business processes, industrial applications and pretty much everything.

Microsoft's HoloLens is pretty much the most sophisticated AR technology in the current times. It's a self-contained holographic computer that lets you engage with holograms and consume digital content like never before. Imagine, with an AI engine, the device can find applications in everything you do. Right from helping you decide your outfit for that all-important meeting on a Monday morning to fighting the bad guy along with your favourite superhero on the movie screen on a Friday night!

The AR engines transform the knowledge into a visual and life-like format, enabling quick and effective engagement with the human consumer.

In July 2016, US mega-retailer Macy's announced a 'Macy's on Call' mobile service using which shoppers could ask Watson their questions about the latest products in stores, facilities and services. Imagine the potential of such an AI powered application with AR engine. Watson would suggest an intelligent mix of products for you with the highest probability of sale and AR would let shoppers 'experience' and 'try out' the products.

For example, your smartphone has AI and AR integrated into it. AI keeps a track of your likings, your taste and preference patterns. You now decide to renovate your room. All you have to do is click a picture of your room and let AI decide on how to decorate it. AI, based on your taste and preference patterns, will decide a few possible combinations of different articles which would look good in your room. Next AR, with the 3D projection technology, will project a life size 3D model of all the articles onto the real-life environment and you can view in a holographic way, all the articles and how the room would look. Once you are happy with the choice, all you have to do is approve. AI will check for the best prices online and with your approval order the articles to your place. Such kind of technologies take customer experience to the next level. With enhanced customer experience this technology improves your brand image and create brand loyalty.

Anecdote

It's getting cold in Hyderabad and Shashank wants to buy a jacket. He asks his google assistant to check up a few options for him. AI technology recognizes that Shashank stays in Hyderabad and that winter does not last

long here nor is it quite severe. It also knows that Shashank likes to buy clothing in dark shades. AI scans through the web and shows him 3 most relevant options, jackets in black and dark brown and not extremely warm ones so that they can be worn in the present climatic conditions, available on Amazon and Flipkart. Now these are the two apps which have AR technology integrated into them. Shashank can now see a holographic 3D image of the jackets in front of him. He scans through the choice given to him and chooses the one he likes the most. This one is then ordered by his google assistant to his delivery address. All Shashank had to do is open the app and say the word, “Show me a few jackets” and all his work is done. In the comfort of his home, he could go through the entire shopping process without even having to step out.

What we are suggesting is that the technology of AR is quite expensive and we cannot expect every company to have its own AR technology linked to its websites and apps. If tech-giants like Amazon and Alibaba- which are currently the biggest online retailers- go ahead with integrating AR with their apps, the sellers selling products on these websites will only have to give a certain sum as royalty to these two companies and all their products which can be seen on these apps would come under the purview of AR technology and can be projected in a holographic 3D imagery. Now, all the companies which tie up for this technology will get an extra edge over the ones that don't, and any customer would in the end choose the product with which he receives the maximum amount of satisfaction.

Future of AI and AR: The Ultimate Mix

1. AI will not replace humans. It is a common belief that AI will take over the human activities and cause unemployment. However, the same isn't true. AI will work alongside humans making their working easier and more efficient. For example, Maple, the delivery-only restaurant in New York city. The technology here plans out the fastest route for delivery and tells the chef the ingredients they will need for the dish ordered. The technology can also forecast which meal would be in maximum demand based on the time and weather conditions. However, the company still requires chefs to cook the food, delivery boys to deliver and managers to supervise the undertaking. AI hasn't replaced the jobs, it has only made them easier for key decision makers by providing all the relevant information at the finger tips.
2. AI will also help the companies stay efficient and innovative by helping employees work faster and focus on aspects of their jobs which technology cannot do. This would mean that the employees would now get more time to concentrate on the bigger picture.
3. Too much of anything isn't good. Any customer would not like to be bombarded with various advertisements when he is looking for something in particular. Thus, AI would help to make their lives easier by reducing the interactions to only the ones that provide value. The less invasive the technology, the more seamless the customer experience.
4. As a company leader, one should be looking for opportunities to grow and expand. The digital marketing world is fast paced and constantly changing and it will only continue to grow as more companies take advantage of AI. AI is reshaping the marketing world by making customers experience more seamless and helping leaders predict what their customers want, thus positioning digital marketing as one of the most effective ways to reach an audience.
5. AR can provide a fantastic way for customers to explore a space and uncover additional information via the viewing of an object. This might be a textual information that appears by the object, or could be related 3D models and video animations. The British Museum has used its partnership with Samsung to create a AR app which can be used by visitors to view additional information about objects on display as part of its exhibition experience.
6. Packaging has always been a key way of communicating with customers. AR allows you to pass information onto your customers about the product while also having a little fun. Starbucks recently used AR as part of a Valentine's Day marketing campaign. When customers downloaded the Starbucks AR app and pointed their smartphone at their cup of coffee, it was brought to life with a digital animation.

Conclusion

The magnitude of the impact of AI and AR in the next decade is way beyond anything we have ever imagined. With the passage of every second humans are stepping forward in every field. And so, are companies doing. Technology and commerce are letting the world experience new things and attracting more customers for the company each day. And we are now at the primary stage of 4th industrialization dealing with numerous technologies and wrapping the world with it. As there is an elevation in the technology, AI and AR are having their footprints in every field. Every company is hungry to attract more and more customers and are working hard to fill their hungry stomach by improving the customer experience. The technologies of AI and AR have enough potential to penetrate into the business markets to tap the untapped resources and generate exponential revenues for the businesses that integrate these technologies into their day-to-day working. The process of marketing has the maximum potential to utilize these technologies and grow ahead and change the way of customer experience into an entirely different process. Every industrial revolution brings with it a 360-degree change in the market and so will AI and AR together.

References

- 1) THE HINDU- 22 Oct, 24 Oct, 26 Oct, 7 Nov, 29Nov, 3 Dec, 11 Dec, 20 Dec, 25 Dec, 30 Dec 2017
- 2)<https://www.linkedin.com/pulse/impact-artificial-intelligence-digital-marketing-srishty-mishra> : Impact of AI on the marketing world
- 3)<http://www.bolddigitalmarketing.com/mixed-reality/why-ar-vr-should-be-marketing-strategy/> : How AR can be mixed with other kinds of technologies
- 4) <http://www.techlofy.com/working-together-combination-ai-ar/> : Combining AI and AR
- 5)<https://www.statista.com/statistics/607835/worldwide-artificial-intelligence-market-leading-use-cases/> : AI in use
- 6)<https://www.digi-capital.com/news/2016/01/augmentedvirtual-reality-revenue-forecast-revised-to-hit-120-billion-by-2020/#.WlJaxzeYPIU> : AR revenue prospects
- 7)<http://www.adweek.com/digital/artificial-intelligence-is-on-a-crash-course-with-ar-and-vr-heres-what-it-means-for-marketers/> : AI and AR effects on marketing and marketers