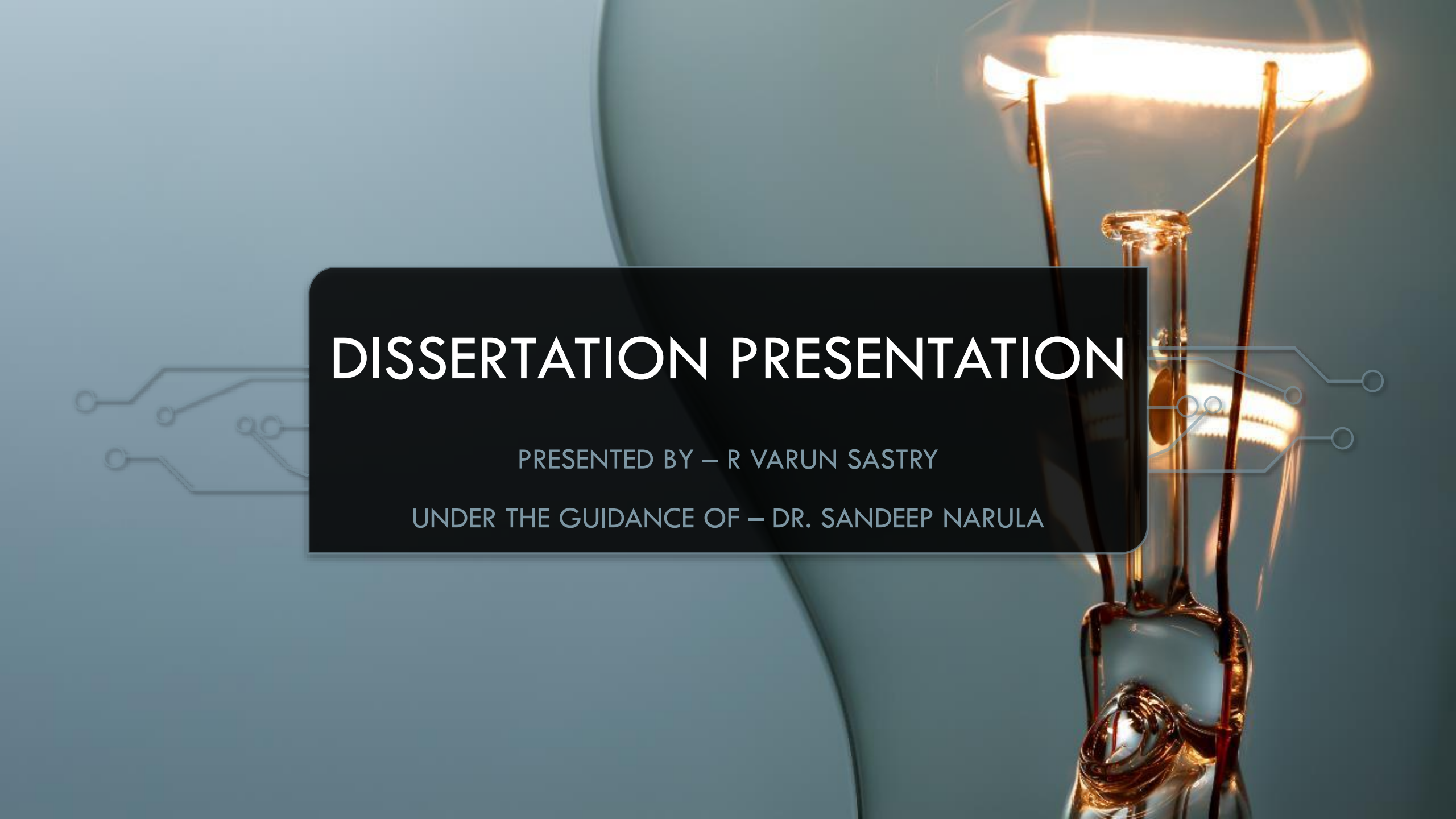




DISSERTATION PRESENTATION

PRESENTED BY – R VARUN SASTRY

UNDER THE GUIDANCE OF – DR. SANDEEP NARULA



Study on establishing Customer
Experience as a Competitive
Advantage in the Pharmaceutical
Industry with the aid of Artificial
Intelligence (AI)



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ABBREVIATIONS

- AI – Artificial Intelligence
- CX – Customer Experience
- EHR – Electronic Health Record
- RIOC - Return on Invested Capital
- EAV - Economic Add Value
- RPA - Robot Process Automation
- NLP - Natural Language Processing
- CLV – Customer Lifetime Value
- CRM – Customer Relationship Management

ABSTRACT

- **Background:** With the advent of modern technologies such as Artificial Intelligence and its various branches, the area of Customer Experience in the Pharmaceutical Industry could be upgraded to level of satisfaction of the customers with ease. This will help in increasing the trust within the patients while bringing more limelight on the pharmaceutical organizations.
- **Methodology:** Google Scholar, PubMed, researchgate.net, hindawi.net are among many of the websites which were used along with the grey literature involved in those research papers. The PRISMA guidelines were followed, and a modified version of PICO inclusion/exclusion criteria was followed for screening titles and abstracts, among others.
- **Conclusion:** This study reviews various pieces of literature that revolve around the usage of AI and its branches in enriching the CX division in the pharmaceutical industry. It explores the uses and definitions of the technological branches which would be suitably imported into the CX division.
- **Keywords:** Artificial Intelligence, Customer Experience, healthcare industry, machine learning, natural language processing, Pharma industry, and electronic health record systems.

A conceptual image showing a field of umbrellas. In the foreground, a single blue umbrella stands out among many white ones. The scene is overlaid with a white circuit-like pattern of lines and nodes on the left side, suggesting a digital or technological theme.

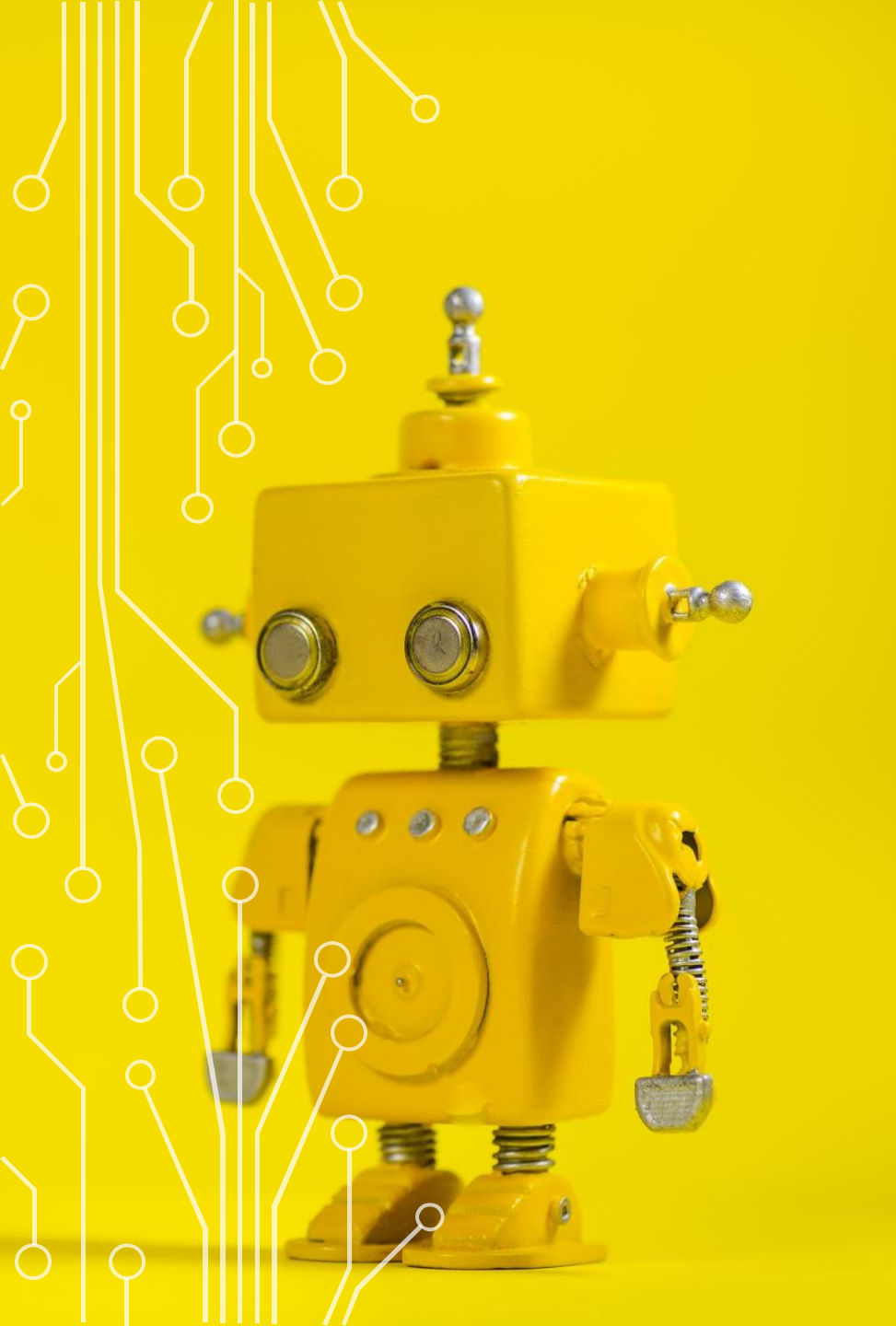
INTRODUCTION AND BACKGROUND

- Customer Experience (CX) can be defined as a process of interactions between an organization and a customer throughout their relationship.
- With great customer experience management, the executives can:
 - Fortify brand inclination through a great experience.
 - Increment income with gradual deals from existing clients and new deals from the positive image created by local word-of-mouth and product/service advocacy.
 - Advocate through valued and memorable customer interactions along with Improving customer loyalty.
 - Customer fluctuation can be reduced by lowering costs.

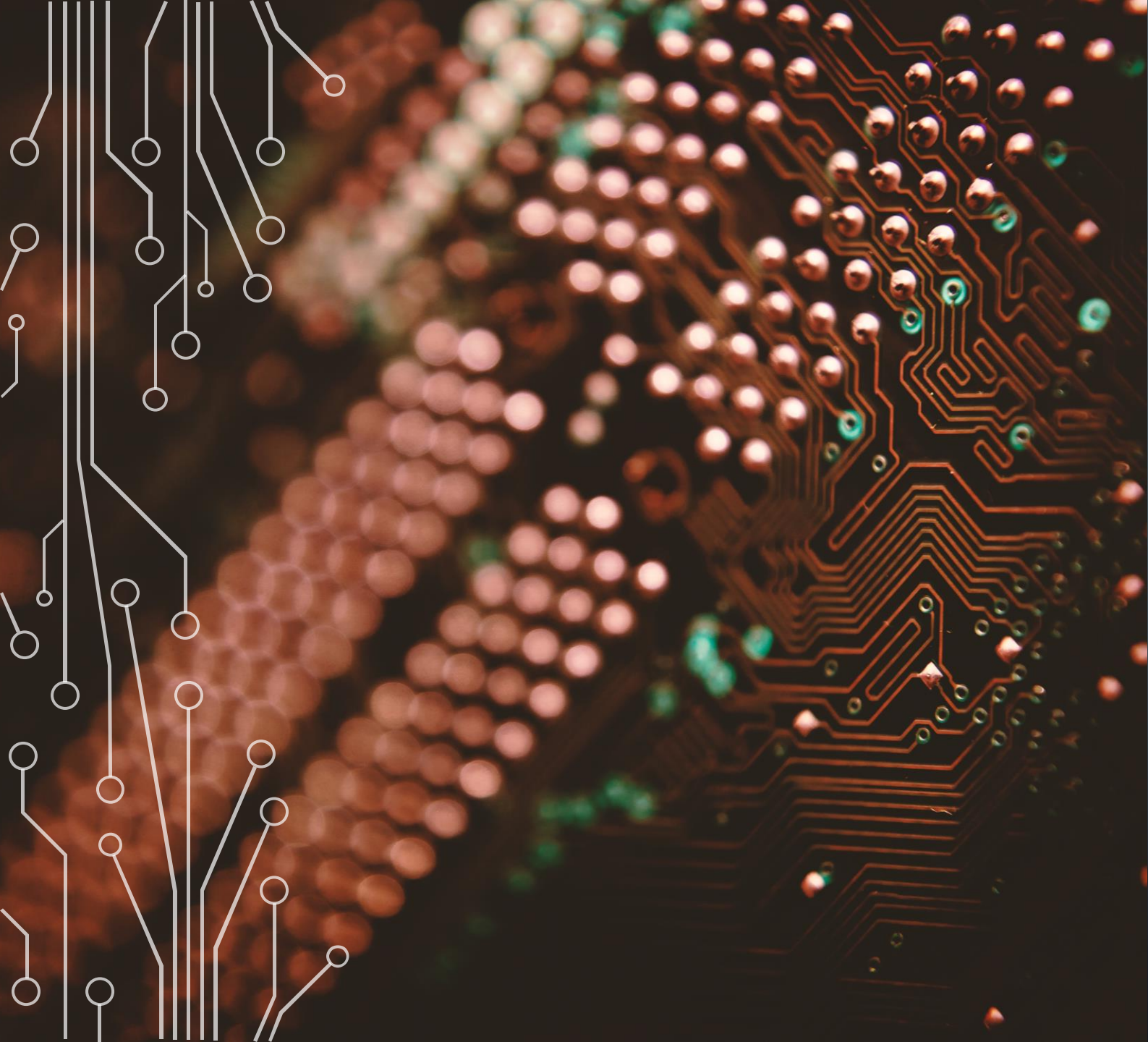
Acquisition	Efficiency	Retention
Generate more opportunities	Increase in ROIC/EVA	Increase in share of wallet
Increase brand equity	Increase in productivity	Drive loyalty
Increase market share	Decrease in cost of Operations	Drive advocacy

- To calculate these factors, Oracle Research came up with an equation, namely, the *Customer Experience Value Equation (CX)*.
- They recommend three major areas to focus upon, which are; *Acquisition (A)*, *Efficiency (E)*, and *Retention (R)*. When combined, they together form the CX Value Equation as shown below:

$$CX = A + E + R$$



- *Artificial intelligence* can be defined as the intelligence demonstrated by machines, unlike the natural intelligence displayed by humans and animals, which involves consciousness and the emotionality of living. The distinction between the former and the latter categories is often revealed by the acronym chosen, which is AI.



VARIOUS AI-BASED TECHNOLOGIES



Machine Learning



Natural Language
Processing



Physical Robots
& RPA



Rule-Based Expert
Systems

RESEARCH METHODOLOGY

- i. Google Scholar, PubMed, researchgate.net, hindawi.net are among many of the websites which were used along with the grey literature involved in those research papers.
- ii. Studies that proposed the integration of new technology, namely artificial intelligence to improve the customer experience in the pharmaceutical sector and healthcare sector were shortlisted.
- iii. The searches were conducted utilizing a search string and important keywords which employed the following combinations: Artificial Intelligence, Customer Experience, healthcare industry, machine learning, natural language processing, Pharma industry, and electronic health record systems.

Criteria	Inclusion	Exclusion
Population	Adequately sized organizations.	Animals Plants
Intervention	Not Applicable	Not Applicable
Comparator	Not Applicable	Not Applicable
Outcomes	Shows presence of impact on the quality of customer experience when AI is used to aid the process of customer interaction. Organizations have completely immersed modern technologies in their day-to-day functions. Economic burden, including the cost of integrating AI, loss of productivity, incoherent communications.	AI and its subsidiaries are not used in any capacity to improve or change the customer experience. Customer Interaction points are handled individually and by humans.
Study Design	Case-control studies Cohort studies Cross-sectional studies Modelling studies Economic Evaluations	Editorials Letters Case series reports Conference reports Reviews
Other	English Language	



LITERATURE REVIEW

ARTICLE 1

- **Author:** Ruth N. Bolton, Janet R. McColl-Kennedy, Lilliemay Cheung, Andrew Gallan, Chiara Orsingher, Lars Witell, Mohamed Zaki
- **Title:** Customer experience challenges: bringing together digital, physical and social realms
- **Source:** Journal of Service Management. 2018
- **Focus:** The reason for this paper is to investigate developments in client experience at the crossing point of the computerized, physical, and social domains. It unequivocally considers encounters including innovation empowered administrations, like computerized twins and mechanized social presence (that is, remote helpers and administration robots).
- **Findings:** The applied structure distinguishes eight "dualities" or explicit difficulties associated with incorporating computerized, physical, and social domains that challenge associations to make better client encounters in both business-to-business and business-to-shopper markets. The eight dualities are contradicting vital choices that associations should accommodate when the co-making client encounters under various

ARTICLE 2

- **Author:** Davenport T, Kalakota R
- **Title:** The potential for artificial intelligence in healthcare
- **Source:** Future Healthcare Journal, 2018
- **Focus:** The intricacy and ascent of information in medical care imply that man-made consciousness (AI) will progressively be applied inside the field. A few sorts of AI are as of now being utilized by payers and suppliers of care, and life sciences organizations. Although there are numerous occurrences wherein AI can perform medical care undertakings also or better than people, execution components will forestall huge scope robotization of medical care proficient positions for an impressive period. Moral issues in the utilization of AI in medical care are likewise talked about.
- **Findings:** They accept that AI has a significant task to carry out in the contributions of the medical service of things to come. Like AI, it is the essential ability behind the improvement of accuracy medication, broadly consented to be a painfully required development in care. Albeit early endeavors at giving analysis and treatment suggestions have demonstrated testing, they expect that AI will at last dominate that space also.

ARTICLE 3

- **Author:** De Keyser A, Köcher S, Alkire L, Verbeeck C, Kandampully J
- **Title:** Frontline service technology infusion: conceptual archetypes and future research directions. Journal of Service Management. 2019 Jan 14.
- **Source:** Journal of Service Management. Published on 2019 Jan 14
- **Focus:** Savvy innovations and associated objects are quickly changing the hierarchical cutting edge. However, our comprehension of how these advances mix administration experiences stay restricted. Hence, this paper embarks to refresh existing arrangements of Frontline Service Technology (FST) imbuelement. Besides, the creators talk about three promising shrewd and associated advances – conversational specialists, broadened reality (XR), and blockchain innovation - and their separate ramifications for clients, Frontline Employees (FLEs), and administration associations.
- **Findings:** The authors characterize FST and propose a bunch of FST imbuelement models at the hierarchical cutting edge. Furthermore, they foster future exploration headings zeroed in on conversational specialists, XR, and blockchain innovation suggestions for administration.

DISCUSSION



Modern technologies are invading the workings of various sectors such as Computer-aided vision, robotic aid in supply chain management such as movement of goods, and autonomous driving in vehicles among others.



Likewise utilizing human-like chatbots for correspondence and managing administrative tasks will be the way to go forwards.



These forerunner models feature the potential for AI-CRM to use immense data structures to foresee what adverts the customer will click on, what items will the customer like, etc.

EXAMPLES OF VARIOUS PRECURSORS

1) Leveraging Big Customer Data: In this, companies mainly handle and analyse the assorted information which is collected from a huge bank of information, which would also give them an upper hand in demystifying their customers faster than their competitors.

2) Communicate, Understand and Create the Way Humans Do: With the development and advent of administrative chatbots and voice enacted advanced partners, the need for this emerging technology to be as like human or understand and create in the way that Humans do is very important. For example, Precire.

- **3) Customer Acquisition:** In this, organizations try and calculate a customer's CLV and CACs by gathering and analysing existing data of already present or current customers. This will help organizations to predict future customers' points of interest and purchasing preferences to anticipate the CACs and CLVs. For example, Brytes.
- **4) Customer Development and Retention:** There are two key parts to the CRM which aid in the creation of Customer Profitability. They are as follows:
 - *Customer development* alludes to endeavors to increment per-period benefit from current clients like expanding edge, recurrence, strategically pitching, or upselling.
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- **5) Personalization:** In today's day and age, where AI framework generally perform mechanical and insightful undertakings, they will gradually move towards performing personalized correspondence assignments. This will aid in increasing the customer's CLV and decrease CACs for new customers.
- **6) Role of Social Network:** Many organizations are failing to take into account the role of social network and the ease with which one can connect to one's customers through the medium. Artificial intelligence applications will permit such examinations to grow and extend, empowering a greatly improved utilizing of client network information. Advanced machine-learning tools allow for the identification of social networks and of communities within the networks using a variety of online data.

- **7) Role of Customer Technology Skills:** In the current age, organizations have to take into account the factor that not all of their customers will be equally tech-savvy and thus single approaches to market them or acquire them is bound to fail. They are also less inclined to grab new deals or look-up new products. Here, specific AI technologies could be modelled to reach out to those customers in the manner that they find comfortable and then market one's product/service/brand. For example, Alexa.

CONCLUSION



The fact that AI has a significant task to carry out in the advancement of patient-centric customer experience is accepted.



It essentially has the potential to improve the accuracy of medication, and the general populace has consented to it to be a woefully required development in care.



Given the quick advances in AI for imaging investigation, it appears to be conceivable that most radiology and pathology pictures will be inspected sooner or later by a machine.



- The best test to AI in these customer experience spaces is not whether the advances will be adequately able to be valuable, but rather guaranteeing their selection in every contact point of CX in the Pharmaceutical Industry
- For this to occur, AI frameworks need to support and incorporate the various needs and normalizations of the current records. They may need to be paid for by an open or a private payer associations and continuously refreshed over the long run. We can hope to see restricted utilization of AI-based CX in the pharmaceutical industry within 5 years and more broad use within 10 years.



THANK YOU