MedBudd App

Aditya P. Patil[1], Anurag D. Dubey[2], Rahul B. Yadav[3],Shailadh S. Shinde[4]
[1,2,3,4]*B.E Student, Information Technology, MET Institute of Engineering, Nashik, Maharashtra, India*

***Abstract*— We are here to solve one of the major problems in the world's highest growing and leading industry, The Pharmaceutical industry, Medical Representatives are the front-end working professionals in the sales department of the pharmaceutical industry, their job function is to give details about their products to chemists and medicinal stockists, they have been allotted a target from their respective companies which they have to achieve on monthly/quarterly and yearly basis.**

We have come up with a solution with an all-around solution to this problem. Our app will have modern features like photo-to-text conversion, automatic sales updates, live target details, quizzes, and interaction with the team. Furthermore, it will use OCR technology to read data which will reduce manual cost and time as well. It will also use Big Data Analysis that will help organizations to harness their data and use it to identify new opportunities. This, in turn, leads to smarter business decisions, more efficient operations, higher profits and more satisfied customers.

Keywords – OCR - Optical Character Recognition, Big Data, Pharmaceutical, Sales, Analytics, Medical Representative.

I. INTRODUCTION

In the pharmaceutical sector, marketing is one of the key factors influencing sales. Therefore, it is crucial to understand how doctors feel about pharmaceutical sales representation. The development of a theoretical model to depict how physicians build their perceptions of pharmaceutical sales reps is the goal of this essay. The following three topics are of particular interest: (1) Physicians' perceptions of the company for which the representative works; (2) Physicians' perceptions of the representative's values; and (3) Physicians' assessments of the representative's personal qualities. To provide prescriptive recommendations for pharmaceutical corporations in the areas of ethics training, hiring procedures, image management, and corporate communications to the medical community, research is required in these areas. Study on the relationship between corporate and personal values.

We are here to solve one of the major problems in the world's highest growing and leading industry, The Pharmaceutical industry, Medical Representatives are the front-end working professionals in the sales department of the pharmaceutical industry, their job function is to give details about their products to chemists and medicinal stockiest, they have been allotted a target from their respective companies which they have to achieve on monthly/quarterly and yearly basis. The problem comes when they have to give their Target reports and updates to their respective sales manager, even today in this modern world they have to prepare their reports and depend upon orthodox methods like excel sheets, and google documents, as they do not belong to a technical job they lack skills to create proper sheets and present them and also every time their hierarchy has to ask them for target updates manually, in totality this shifts a lot of their focus from achieving sales goal to presentation To solve this problem and lesser the Barrier between the company to a medical representative and medical representative to chemists 2 we have come up with the app called as Med-Bud, this app will have modern features like the photo to text conversion, automatic sales update, live target details, quizzes and interaction with the team.

II. LITERATURE REVIEW

2.1 EXISTING SYSTEMS

2.1.1 Data Sources:

Combinations of the phrases pharmaceutical industry, drug information services, drug utilization, doctor's practice patterns and prescriptions, and medications were used in a MEDLINE search from January 1966 to May 1996. The research sources I found through this search were expanded upon with books from my personal library.

2.1.2 Study Selection:

It was necessary to undertake studies in industrialized nations that were based on direct observations of actual interactions between doctors and sales representatives and that provided quantitative data on the accuracy of the information relayed.

2.1.3 Synthesis:
There were four studies in total. Representatives typically only mentioned the drug's indications while leaving out safety information. Information provided by representatives frequently contained errors.

2.2 INACCURATE INVENTORY ESTIMATES:
Pharmaceutical brands and distributors occasionally need to estimate stockpiles and refill inventory in response to demand. Because most ailments are not seasonal, it is challenging to predict the need for medicine in the pharmaceutical sector. Pharmaceutical businesses lack access to previous sales data, making it difficult to predict the need for specific medications. Accurate sales data is frequently difficult to obtain with a tiered distribution strategy because brands and retailers frequently fail to communicate. Planning and inventory replenishment will be based on assumptions in the absence of accurate sales data. Insufficient inventory could result from these presumptions, which could cause partial fulfilment, a delay, or incorrect completion of new orders.

2.3 POOR INVENTORY AND ORDER VISIBILITY ACROSS THE DISTRIBUTION NETWORK:
The same symptoms and diseases can be treated with a range of medicinal alternatives. The components and pricing points of these goods vary. Sales may fluctuate as a result of this. It might be difficult to determine which items are successful and which are not. If a company distributes through a tier-based distribution system, it could be quite challenging to determine which channels are successful for its products and which ones aren't. Finding best sellers will be equally difficult. With tiered distribution, the majority of brands see decreased visibility following sell-out. They are therefore ignorant of how much of their items are actually sold, how consumers feel about them, and which sales channels work best for them.

2.4 SOLUTIONS TO OVERCOME THE PHARMACEUTICAL INDUSTRY CHALLENGES:
Pharmaceutical companies may have tried various approaches to get beyond the aforementioned obstacles after growing weary of them. But using dependable technology is the most efficient method to overcome these obstacles. Here are a few technical solutions that directly address the issues raised above by streamlining procedures, doing away with mistakes, and relieving stress:

2.5 COLLECTION OF MEANINGFUL CONSUMER DATA:
Choosing the correct OMS can significantly improve a product's visibility. Brands and distributors will be able to integrate with the channels that their distribution network uses thanks to the ideal system. In this manner, businesses can determine which channels aren't doing well and where the majority of their sales are coming from. Realtime insights into consumer behavior and response based on various demographics are provided by a great OMS. Marketing, promotions, and inventory replenishment all depend on this information. Another thing to consider is making technology investments for competitiveness assessment. This will give information about what and how rivals are acting. Brands can compare their strategies properly and make changes to seize the market or stand out.

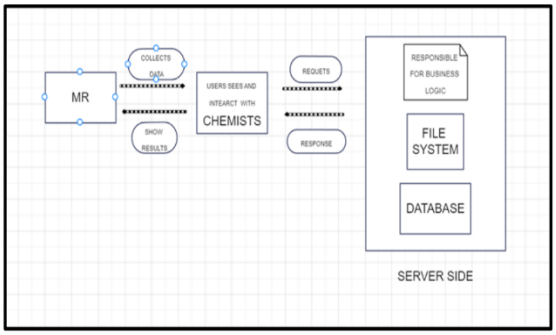
2.6 COLLECTION OF SALES DATA LEADS TO BIG DATA:
Big data, or great volume, variety, and velocity data, cannot be stored or analyzed by traditional systems to provide information for decision-making. The process for formulating strategy in sales and CRM has evolved in the era of the big data 7 (BD) revolution, and firms should use a data analytics system to meet the needs of optimistic plan formulation. Organizations and customers can gain behavioral insights via BD, and analytics can be utilized to glean useful data from BD for decision-making. According to this report, big data analytics (BDA) refers to a technique or system that uncovers hidden patterns in business data (BD) to support the development of sales strategies. BDA uses customer data mining to obtain client feedback on goods, services, and businesses. Through the examination of possibilities and increased closure rates, sales performance successfully and efficiently reaches the goals set forth in the sales process. The information technology system (i.e., BDA) has been

observed to aid salespersons in obtaining better closing rates and increasing revenue. The salesperson can increase their knowledge, targeting, and presentation skills by taking advantage of information technology system capabilities, i.e., BDA capabilities. In the current study, we consider that BDA will enhance sales performance

III. PROBLEM STATEMENT

Its 2022 and we are still relying on the orthodox techniques in medical industry especially in areas like sales reporting, planning and communication, a lot of time of medical representative goes in vain by relying on such techniques, and even if there are any software available, there are problems like fake reporting, accessibility issues and the list goes on.

IV. SYSTEM'S ARCHITECTURE



Optical Character Recognition or OCR is the technology that is used to convert characters or text that is either handwritten or printed in the form of paper, scanned document, advertisements, photos etc. into machine encoded text or we can say in the digital form. The steps involved in OCR is basically processing the input, recognizing the text and processing it further for the required purpose.

Optical Character Recognition (OCR) is the process that converts an image of text into a machine-readable text format. For example, if you scan a form or a receipt, your computer saves the scan as an image file. You cannot use a text editor to edit, search, or count the words in the image file

V. METHODOLOGY

1. Registration Process:

Create and submit an establishment registration document to register with App. Be sure to save a copy of your submission. It should include:

- The name and verification
- Contact information of someone responsible for receiving communications related to that establishment
- All applicable business operations that establishment performs

2. Process for Scanning Report:

Optical character recognition works by dividing up the image of a text character into sections and distinguishing between empty and non-empty regions. Depending on the font or script used for the letter, the checksum of the resulting matrix is subsequently labelled (initially, by a person) as corresponding to the character in the image.

This 'identify and encode' approach is little-changed since the GISMO apparatus developed in the early 1950s for the forerunner of the NSA (see image below). The main differences are that pixel coordinates have replaced the arbitrary grids of earlier systems and pre-processing has become more automated. You can also greatly speed up the process by hiring machine learning experts to implement a suitable ML solution.

3. Big Data Analytics in Pharmaceutical Industry:

1. Accelerating drug discovery and development the cost of bringing a new drug into the market is skyrocketing, and as patents for blockbuster drugs expire, the pharmaceutical industry is looking to speed up the process of bringing a drug to market

2. Increasing clinical trial efficiency Big Data analytics in the pharmaceutical industry can help pharmaceutical companies reduce the cost and accelerate clinical trials by identifying and analyzing various data points: e.g., participant demographic and historical data, remote patient monitoring data, and data on previous clinical trials.

3. By effectively using Big Data technologies to select unstructured data, pharmaceutical companies can identify patterns that help develop more effective and personalized medicines for their patients.

4. Reduce costs and increase drug utilization with increasing pressure on pharmacy operating margins, it is imperative to increase efficiency throughout the process. Detailed analysis of key metrics such as average ingredient cost per prescription, percentage of total drug spend that is rebated, and savings from drug utilization review per member per year help

pharmaceutical companies make smarter decisions to increase revenue and reduce costs using Pharmaceutical Analytics.

5. By capturing key data points, pharma business intelligence can help identify new markets and analyze the effectiveness of different marketing channels to prioritize and gain a competitive advantage. It helps to understand the performance of the sales force and make better and faster decisions.

6. Improve operations and employee training pharmaceutical companies can significantly reduce costs by improving their existing operations and processes using pharma analytics and data insights. By using advanced analytics, pharmaceutical companies can understand how machine settings, employee training, or raw material usage affect production quality.

Based on this, pharma companies can make decisions to optimize and improve the entire process. By using predictive analytics and Big Data analytics in pharmaceuticals, pharmaceutical companies can leverage external indicators to predict risks such as quality issues, machine breakdowns, or significant changes in demand.

VI. APPLICATIONS

1. Complete tracking of MR trips:
Keeps track of medical representatives' trips and employs modern features such as geolocation to avoid false reporting.

2. Stronger sales analysis:
Produces large amounts of data that will be extremely useful in future analytics for the company. And can be used to expand business in a specific area.

3. Improved internal communication:
Even from an administrative standpoint, it is a one-stop communication app for both the management team and the MR.

4. More operational efficiency:
It reduces pharmaceutical employees' additional workload, allowing them to focus on their work and generate revenue for the company.

VII. CONCLUSION

We are proposing an idea to develop an application, our application will be user-friendly, open source and is Free to use. It positively impacts the environmental situation by using fewer products a greater number of times. Concentrating on customer satisfaction and the four dimensions, “Reliability”, “Responsiveness”, “Tangibles” and “Quality” helps us to serve the users in a better manner and thus give us a competitive edge over the others. Thus, Med Bud app can be found improvising operational efficiency, much improved internal communication, stronger and better sales analysis, tracking of MR trips, keeping a track of sales target, manage expenses and maintaining personalized profile of Medical Representative.

REFERENCES

[1] Hung, Y., Huang, S., Lin, Q. and -Tsai, M. (2005),” Critical factors in adopting a knowledge management system for the pharmaceutical industry”, Emerald Group Publishing Limited 2005.

[2] Joel Lexchin,” What information do physicians receive from pharmaceutical representatives?” Canadian Family Physician MAY 1997

[3] U Rivett, R Wood, D de Jager, S L Brown, U Rivett, R Wood, D de Jager, S L Brown, “A pharmacy stock control management system to effectively monitor and manage patients on ART”, 2006 the 4th Institution of Engineering and Technology Seminar on Appropriate Healthcare Technologies for Developing Countries.

[4] Sagdoldanova Aiym; Atymtayeva Lyazzat, “Using intelligent systems in pharmacy”, 2016 IEEE 10th International Conference on Application of Information and Communication Technologies (AICT)

[5] Sophia Rahaman; Shahid Mohammed; Tejasvi Manchanda; Raj Mahadik, e-Pharm, “The Future Approach for Dispensing Medicines in Smart Cities”, Published in 2019 International Conference on Digitization (ICD)

[6] Karez Abdulwahhab Hamad, Mehmet Kaya,” A Detailed Analysis of Optical Character Recognition Technology”, Published: Advanced Technology and Science 2013, AMEC

[7] Najib Ali Mohamed Isheawy, And Habibul Hasan,” Optical Character Recognition (OCR) System”, OSR Journal of Computer Engineering (IOSR-JCE)-Mar-Apr. 201