Driving Customer Acquisition Retention with Predictive Analytics

Utilize Customer Behavior Data to Drive Revenue

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> The **embedded analytics market** is projected to reach **$60.28 Bn** by **2023**, with a **CAGR** of **13.6** from 2017.
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> Source: **Allied Market Research**
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Driving Customer Acquisition & Retention with Predictive Analytics

Big data is growing at an exponential rate. According to IBM, over 2.5 quintillion bytes of data are generated every single day. Enclosing infinite business opportunities, if big data is combined with predictive analytics, it can unleash new possibilities for customer acquisition and retention. With predictive analytics, the key to effective customer acquisition and retention lies in identifying the right prospects and targeting them with the right offers at the right time, and through the right channel.

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1. Introduction

For effective customer acquisition & retention campaigns, organizations need to first understand their prospects & the existing customer base. They need to identify their most profitable customers and their needs & preferences. Accordingly, they need to prioritize their commercial initiatives. Predictive analytics can help organizations easily get over these challenges by providing relevant predictions and insights. By diving deep into big data with predictive analytics, organizations can glean the desired customer intelligence.

High-volume, variety, velocity, and veracity of information assets contribute to the mammoth size of big data. Data may be structured or unstructured and include both traditional and non-traditional data sets, such as transactional, web-based, historic, demographic, economic, audio, video, and social media. Predictive analytics can help organizations make sense of big data for their short-term, as well as long-term business objectives. To realize optimal outcomes, it is required that relevant and quality data is collected from diverse data sources and properly analyzed. When combined with big data, predictive analytics can empower organizations to foresee their potential prospects, understand their needs and wants, and discover the most effective ways to reach out to them.

This white paper provides an overview of how big data & predictive analytics can help organizations optimize their customer acquisition & retention campaigns. The paper will further explain the importance of predictive models in customer acquisition and retention drives.

> " By **2025**, it's estimated that the **global datasphere** will **grow** to **175 zettabytes**."

2. Essentials of Predictive Analytics

Radically transforming the way organizations engage, acquire and retain customers today, predictive analytics has emerged as the real game-changer. Enabling organizations to foresee the future driven by their present actions, it's helping them with what they should do now to ensure the desired outcomes tomorrow.

Various statistical techniques, used in data mining, modeling, machine learning, and artificial intelligence are leveraged in predictive analytics to examine current and historical data to predict future outcomes. Considering multiple factors and variables, predictive models predict future outcomes with a high degree of precision, including "what-if" risk assessment.

Hidden patterns in data are studied using predictive modeling techniques like support vector machines, neural networks, decision trees, classification and regression trees, clustering, association rules, scorecards, etc.

2.1. Predictive Models

In a business milieu, predictive models are used to analyze historical and current data to recognize hidden opportunities and risks for organizations. Predictive models are generated when an adequate amount and quality of data is fed in a predictive modeling technique. This is shown diagrammatically in **Figure 1**. Simply put, whenever data is used to train a predictive modeling technique, predictive models are born. Once the models

Figure 1: Origin of Predictive Models

are created, these need to be validated on an on-going basis with the availability of additional data.

A predictive model encompasses numerous predictors, which are variable factors likely to impact future behavior or outcomes. For example, a future sale may be predicted based on a customer's gender, age, behavior, and purchase history.

2.2. Big Data & Predictive Analytics

Technological progress has enabled organizations better understand their customers and markets by capturing relevant data around them. Organizations are now collecting massive amounts of customer data (both historical and real-time) from a range of data sources. With predictive analytics, organizations can make the most of this data by converting it into actionable customer insights. Acting on these insights, organizations can optimize their product development and marketing strategies. As predictive analytics can help identify not only the right prospects but also the right mix of product types, promotional campaigns, and communication channels.

Insights around high-potential customers, offers and deals they might be interested in, and their preferred channels, can help increase customer acquisition campaigns performance enormously. Furthermore, cost per action can be substantially reduced by targeting the prospects via their most preferred channels and at the time when they are more responsive or open to an offer.

Predictive analytics is equally helpful in retaining the existing customers and reactivating the old customers who have not bought anything for some time. This is made possible through the identification of the next-best offers for customer retention and loyalty programs.

Figure 2 depicts how big data and predictive analytics can help optimize customer acquisition and retention initiatives.
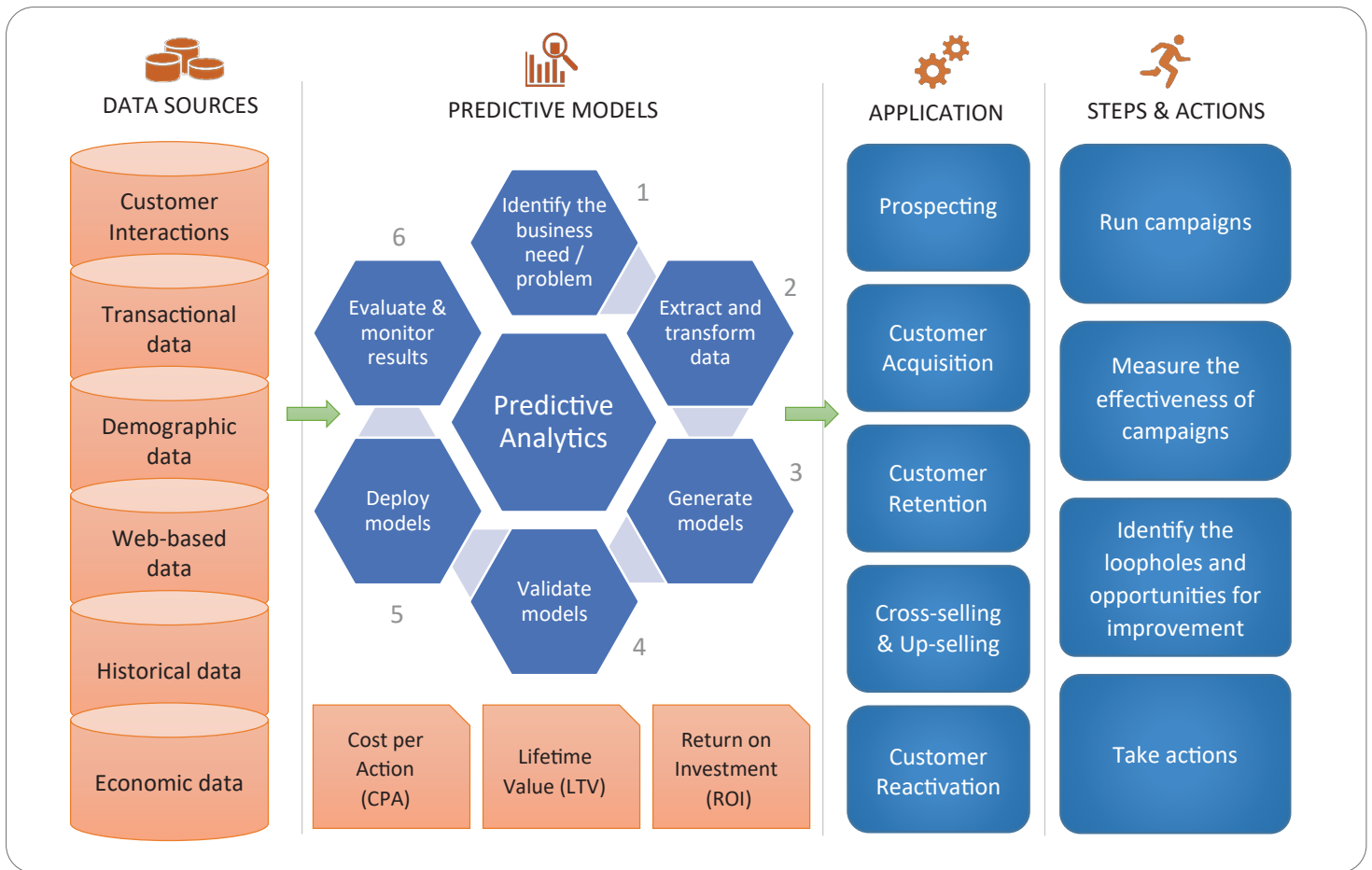
Figure2: Application of Predictive Analytics in Customer Acquisition & Retention

2.3. Predictive Analytics Challenges

The following practical issues need to be addressed effectively while performing predictive analytics

- **Inadequate Data:** Incomplete or inadequate data acts as a hurdle in drawing statistically valid inferences. Data needs to be not only massive but also collected through a variety of sources, right from customers' transactions to customer service interactions, social media conversations, and web browsing patterns.

- **Poor Data Quality:** Successful customer-centric activities depend upon integrated and high-quality data. Poor quality of data can lead to ineffective marketing programs and reduced efficiency and effectiveness of customer acquisition and retention efforts.

- **Data Silos:** Data stored into disparate systems, applications, or sources within the enterprise–across different departments need to be aggregated to get a 360-degree view of data. Data silos can act as a barrier

in achieving a complete view of customers. With data coming from multiple sources, it is challenging for organizations to quickly connect, match, clean and transform data across systems.

> "**75%** of enterprises will shift from **piloting** to **operationalizing AI** by the end of **2024,** driving a 5x increase in **streaming data** and **analytics infrastructures.**"
>
> Source: **Gartner**

3. Application of Predictive Analytics in Customer Acquisition

Acquiring new customers with predictive analytics involves identifying the prospects who are more likely to respond to specific campaigns and promotional offers, or purchase certain products or services when targeted. Organizations' inability to target the right prospects often leads to high acquisition costs.

By enabling target the high-potential prospects with suitable offerings and channels, predictive analytics can help not only acquire new customers but also reduce the cost of acquisition.

Predictive modeling techniques for customer acquisition take into account multiple variables related to the prospects like their age, gender, marital status, place of

employment, geographic location, purchase & product usage history, service preferences, needs, attitudes, etc. Unifying these variables with transactional and other external data, predictive models score potentially valuable customers based on their propensity to respond to particular offerings.

Depending upon the prospects' propensity to be converted and lifetime value, specific customer segments are created. For every customer segment, the most appropriate acquisition strategies are determined and put together.

Figure 3 shows prospects scoring based on their propensity to conversion and lifetime value.
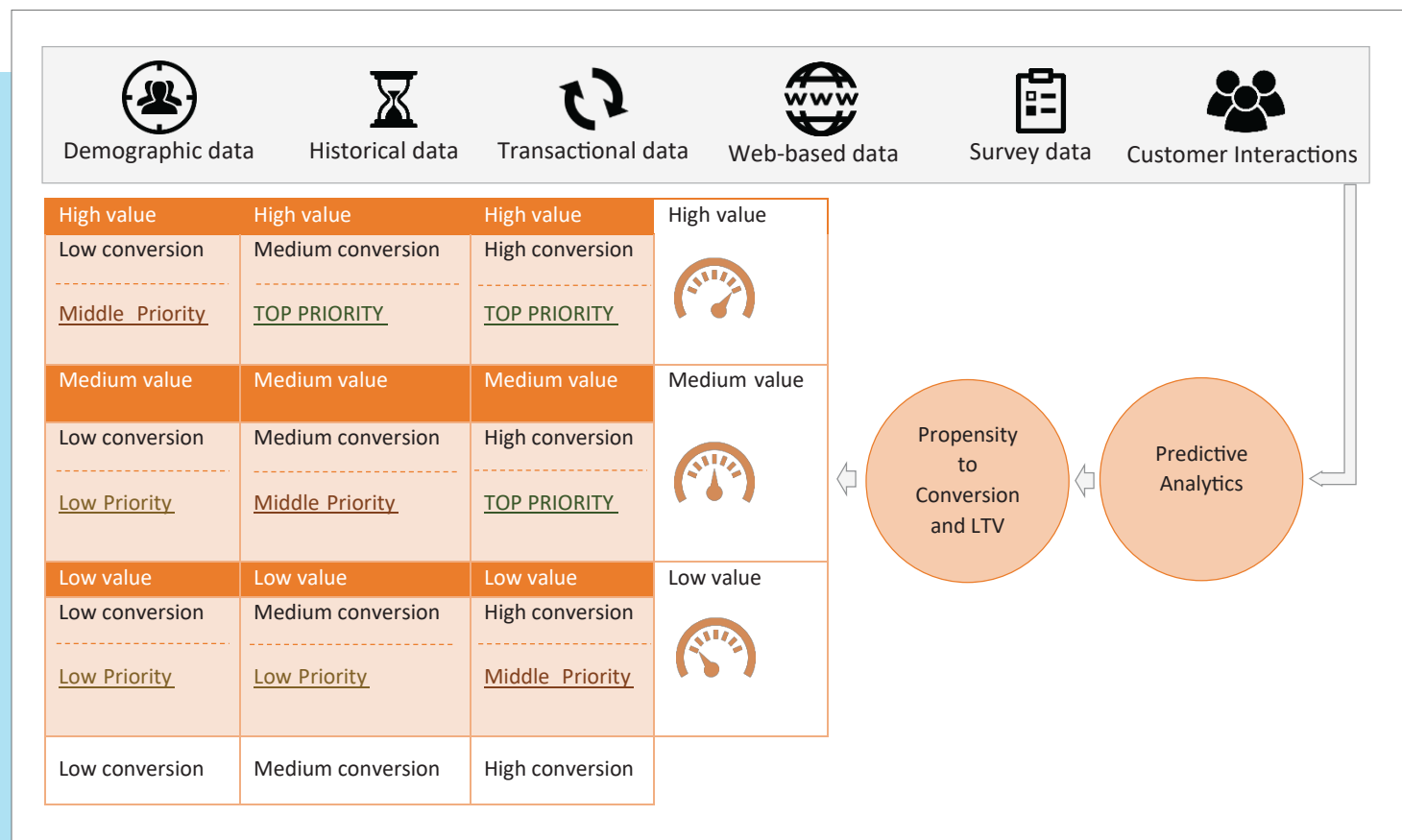

Figure3: Prospects scoring based on their propensity to conversion and lifetime value

With predictive analytics, customer acquisition will essentially involve the following steps:

- Identifying the prospects who are more likely to respond

- Creating customer segments based on their propensity to respond and LTV

- Predicting what specific products, services or offers they might be interested in

- Recognizing high potential segments by channel – in-store, outbound, inbound, direct sales, and digital (online advertising, mobile ads, email, SMS/text messages, etc.)

- Developing a scalable customer acquisition strategy driven by insights around high-value prospects, offers, channels, and times (e.g. weekends, working hours, or specific events)

- Assessing the effectiveness of marketing campaigns by evaluating and monitoring results

4. Application of Predictive Analytics in Customer Retention

Research suggests that acquiring a new customer can be multiple times costlier than retaining the existing one. This is a well-recognized fact among industries like telecommunications, insurance, retail, publishing, etc. Focusing on customer retention is, therefore, critical for organizations in today's highly saturated business environment to stay profitable and competitive.

With predictive analytics, organizations can successfully identify customers who are likely to churn, when and why. Thus, predictive analytics helps recognize potential churn customers and the root causes of their exit. So, before customers churn, organizations can start working on the root causes of their opting out and target them with customized offerings.

Going forward, organizations can boost their retention campaigns ROI by finding which

customers will change for the better, change for the worse, or not change at all. With this knowledge, organizations can avoid unnecessary retention costs and prioritize their retention efforts, while maximizing the ROI.

4.1. Determining Next-best Offers for Retention Campaigns

With the help of predictive analytics, next-best offers can be determined for retention campaigns by analyzing customers' historic and transactional data, as well as current actions. Predictive analytics mines customer data to detect common behavior patterns before particular events, such as buying a new product, upgrading/degrading a service, or switching to a competitor. Based on these patterns, predictive models can help identify the next-best offers that customers are more likely to uptake if targeted through retention campaigns.

4.2. Uplift Modelling for Predicting the Treatment Incremental Effect

Going forward, the uplift modeling / incremental response model can help not only measure the effectiveness of the retention campaign but also predict customers' incremental response to retention efforts. Using both treated and control customers, uplift modeling generates

a predictive model centered on the customer incremental response. This technique directly foretells the incremental effect of a treatment on a person's behavior and accordingly divides customers into four groups. These four groups are discussed and shown in **Figure 4**.
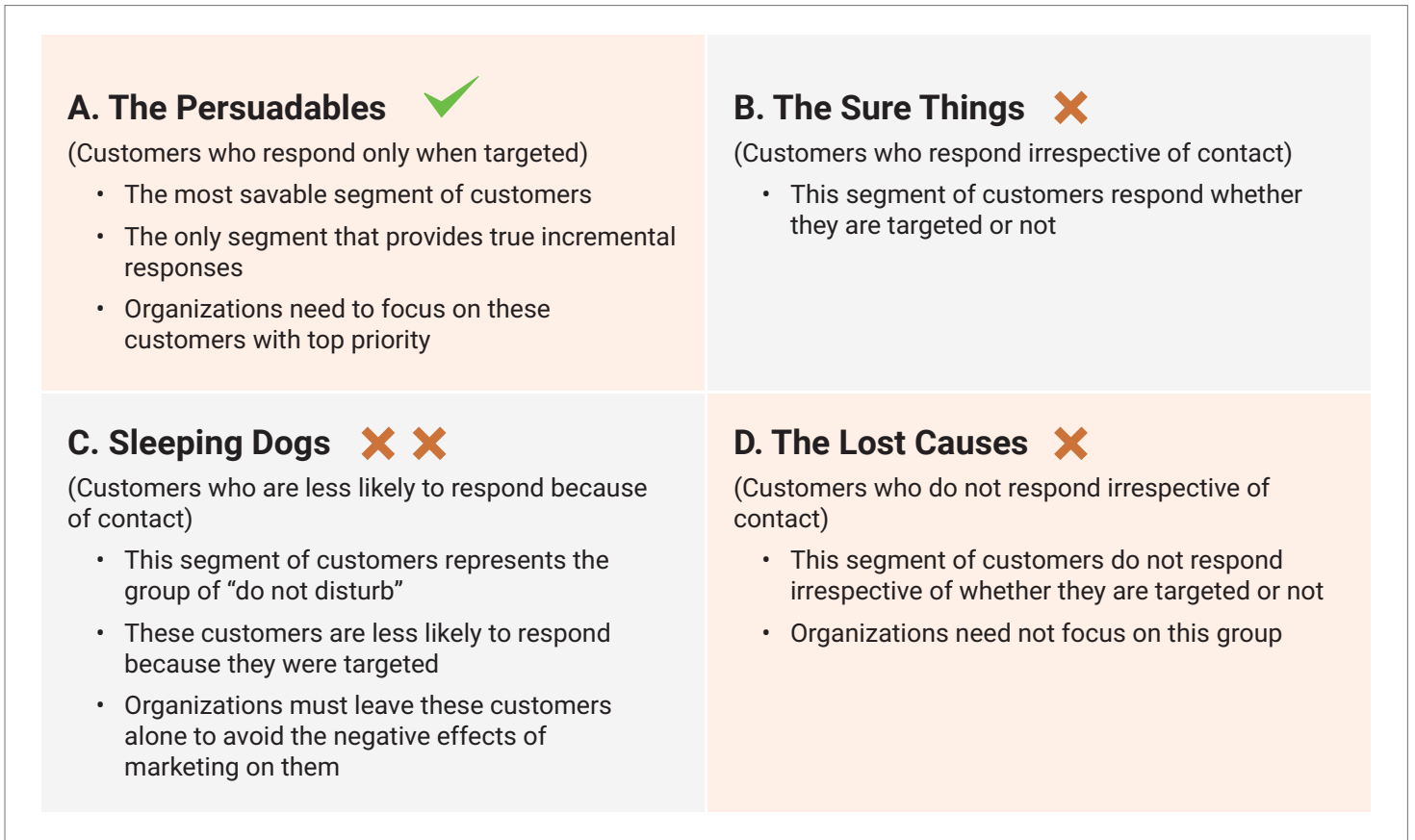
A. The Persuadables ✓

(Customers who respond only when targeted)

- The most savable segment of customers
- The only segment that provides true incremental responses
- Organizations need to focus on these customers with top priority

B. The Sure Things ✗

(Customers who respond irrespective of contact)

- This segment of customers respond whether they are targeted or not

C. Sleeping Dogs ✗ ✗

(Customers who are less likely to respond because of contact)

- This segment of customers represents the group of "do not disturb"
- These customers are less likely to respond because they were targeted
- Organizations must leave these customers alone to avoid the negative effects of marketing on them

D. The Lost Causes ✗

(Customers who do not respond irrespective of contact)

- This segment of customers do not respond irrespective of whether they are targeted or not
- Organizations need not focus on this group

Figure4: Four Groups of Customers Based on Uplift Modelling

5. Recommended Architecture for Predictive Analytics

We propose a flexible and universal architecture, which is shown in **Figure 5**. The proposed architecture supports diverse forms of data and allows data discovery and predictive analytics on speech, text, social media, CRM, CDR, IVR, and other data forms.

This architecture design is truly extensible in terms of support to a full range of analytics, such as speech analytics, text analytics, social media analytics, big data & predictive analytics. This architecture aims at detecting patterns in data, identifying hidden opportunities and risks, and providing customer segment-based strategic insights.

As the insights produced are contextual, these can help top managers, marketing managers, sales managers, customer service departments, and other departments

better derive business objectives and meet customers' expectations. The proposed architecture integrates information from different sources and analyzes it to produce final predictions and insights.

> "**93%** of customers are likely to make **repeat purchases** with companies who **offer excellent customer service**."
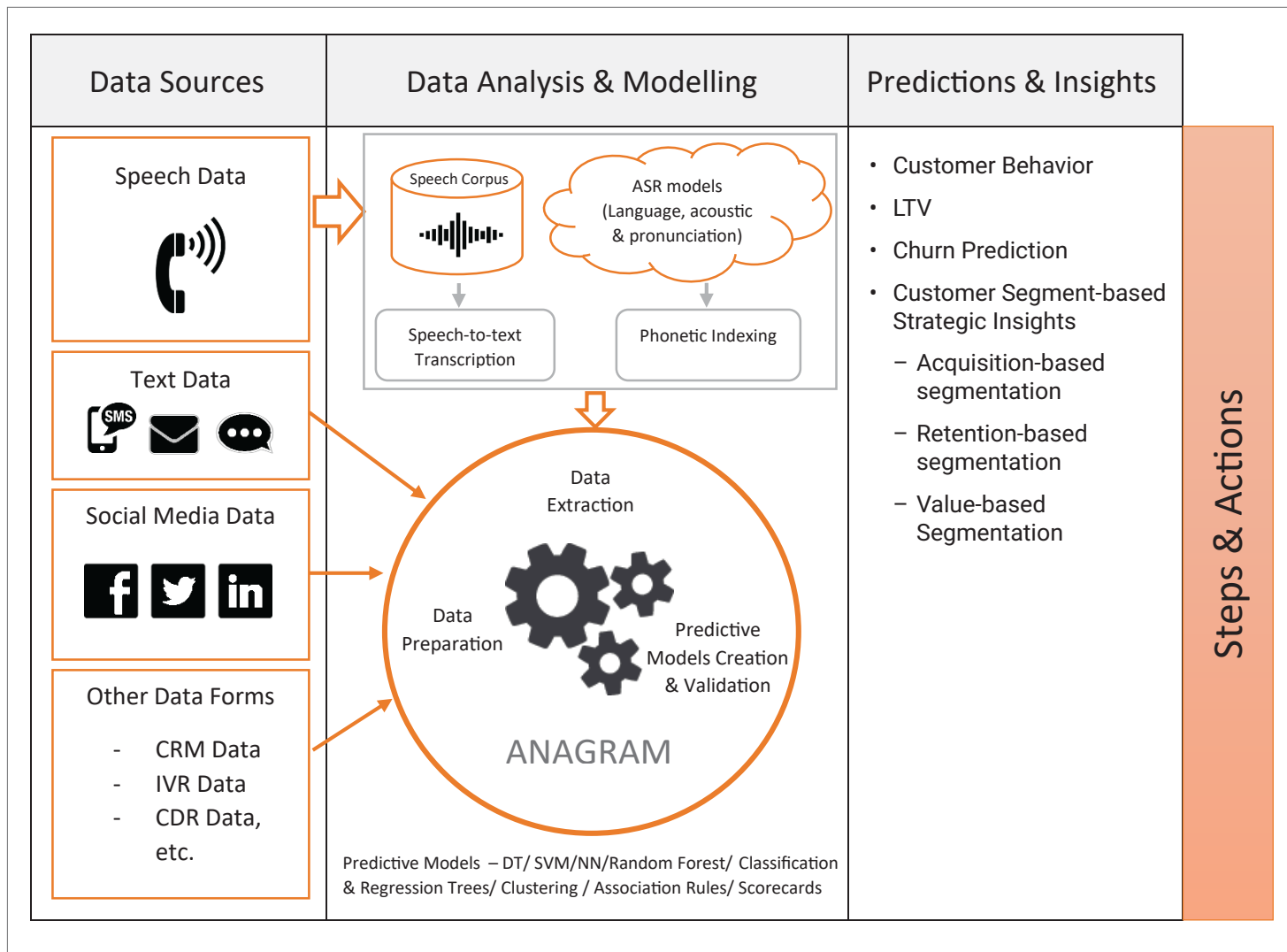
Figure5: Predictive Analytics Architecture

6. Case Study: Predictive Analytics in Action via Anagram

Increasing Customer Retention by Predicting and Reducing Customer Churn

Business Case: A leading telecom operator was struggling to improve its customer retention rate. Despite having conducted several retrospective analyses, the operator was unable to bring down the constantly increasing rate of customer churn. The major challenge with these analyses was that they were not substantial enough to provide a preemptive mechanism to prevent on-going cancellations. By the time data was analyzed and preventive measures / strategies were implemented, the damage had already happened.

Objective: Our objective was to develop a methodology that could predict cancellations so that preventive actions could be taken to retain potential churn customers. We evaluated customer interactions prior to the customer disconnect to understand churn behavior patterns and the reasons for cancellations. The available data sources for analysis included customer interactions (speech, text, and social media), CRM, IVR, and CDR.

Challenge: The challenge was to accurately preempt which customers were likely to churn, when, and why. Besides, we were required to help the operator identify its most profitable customers who needed to be retained.

Solution: We used our data analytics framework-Anagram to analyze diverse sets of data and predict possible cancellations. With Anagram-**Retention Model Builder**, we could predict potential churn customers on age, longevity, CLTV, and tenure-based CLTV factors. Additionally, Anagram **Retention Workflow** enabled sharing relevant details with the concerned people / team / group for immediate actions.

Based on the analysis of customers' profiles, interactions, purchase history, and current actions, we helped determine relevant offers for retention campaigns to retain high-churn probability customers. We also prepared a measuring scale that helped identify customers who need to be contacted on a priority basis with customized treatments.

Results: Decision Trees, Random Forest Modelling, and some other predictive machine learning algorithms were used to predict potential churn customers. Furthermore, a data model was built to predict relevant offers precisely mapped with customers' expectations. A team was deployed to reach out to customers who were more likely to cancel services and retain them with customized offerings. A proactive retention approach coupled with the most suitable treatment options resulted in substantial cost savings for the telecom operator.

7.Conclusion

Predictive analytics can help exploit big data by converting it into precise and actionable intelligence. Using this intelligence, organizations can optimize their customer acquisition and retention initiatives and derive better results. But to effectively meet customer acquisition and retention goals, organizations need to collect an adequate amount and quality of data from a diverse range of data sources.

By predicting when, where and on whom product or service promotions will be most effective, predictive analytics can help maximize customer acquisition, retention, and lifetime value, as well as marketing ROI. Moving forward, measurement of campaign effectiveness is required by organizations to continuously improve the results. This can be achieved by analyzing the campaign results and taking informed actions.

> Predictive analytics has captured the support of wide range of organizations, with a global market projected to reach approximately **$10.95 billion by 2022**, growing at a compound annual growth rate **(CAGR)** of around **21 percent between 2016 and 2022**.
>
> Source: **Zion Market Research**

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