Buyer 's Guide :

Predictive Analytics
Key Questions to ask any Analytics Vendor
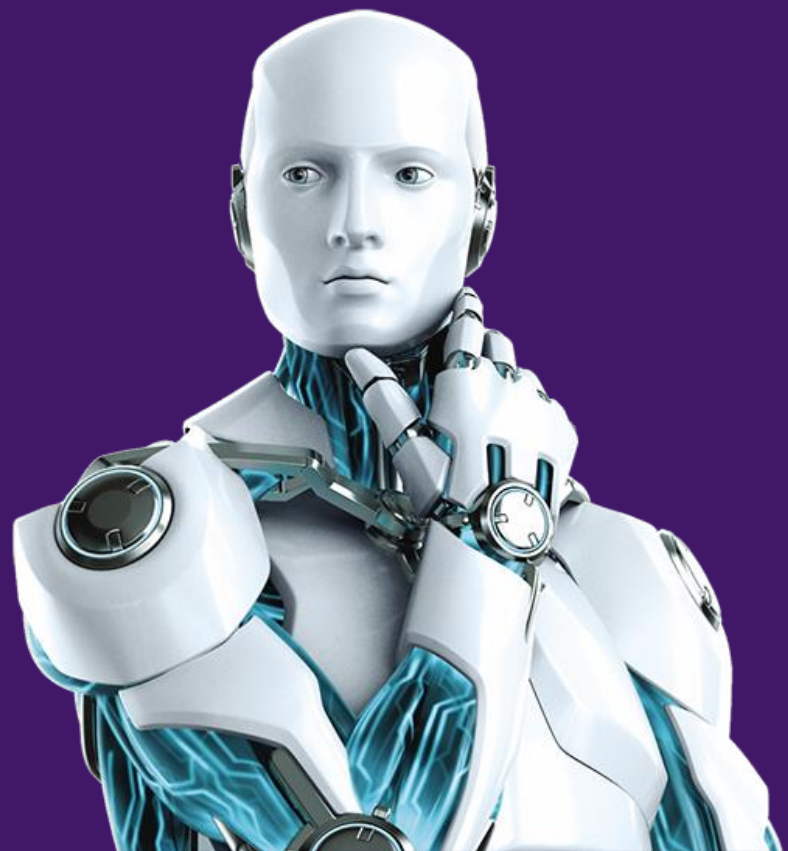
# TABLE OF CONTENTS

INTRODUCTION

The evaluation process to choose the right analytical tools for analytics and especially Predictive analytics needs to be future-proof, flexible, profitable with the possibility of embedding the analytical solutions. This guide can help you choose the right tool by asking the right questions in choosing the right Analytics Vendor.

Organizations have realized the need to utilize their data, presented in raw format, to convert it into actionable insights. Though Self-service Business Intelligence solutions have initiated this journey, finding true value from data can only be achieved with the right data analytics. So, to help you out in this journey we've put together this guide to help you find the best data analytics solution for your company's needs, with questions, case studies, and tips to guide you through this process of finding the best vendor. You will find the importance of understanding your needs, your customer profile, and considering all the factors before taking the plunge.

Some of the questions and case studies might or might not be applicable to every organization but they would definitely be useful to most organizations.
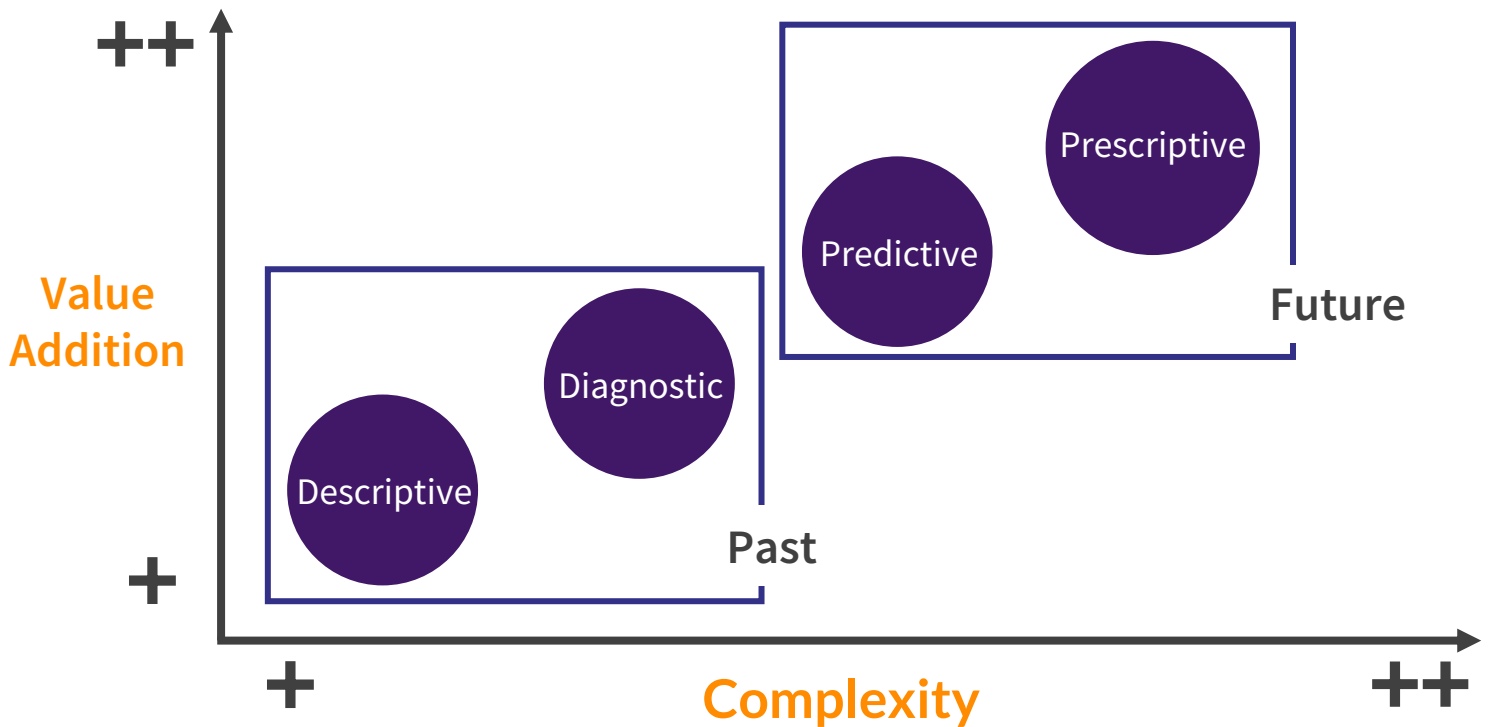
Wikipedia defines Data Analysis as - A process of inspecting, cleansing, transforming and modelling data with the goal of discovering useful information, informing conclusions and supporting decision-making.

In short – It means leveraging the insights generated from data to make smart, data-driven decisions both in the short-term and the long-run. In general, there are 4 types of Data Analysis - Descriptive, Diagnostic, Predictive, and Prescriptive Analysis.

Each of these have their own specific purpose and are used by organizations for multiple purposes. Let's explore each one of these in detail and how they are used by organizations.
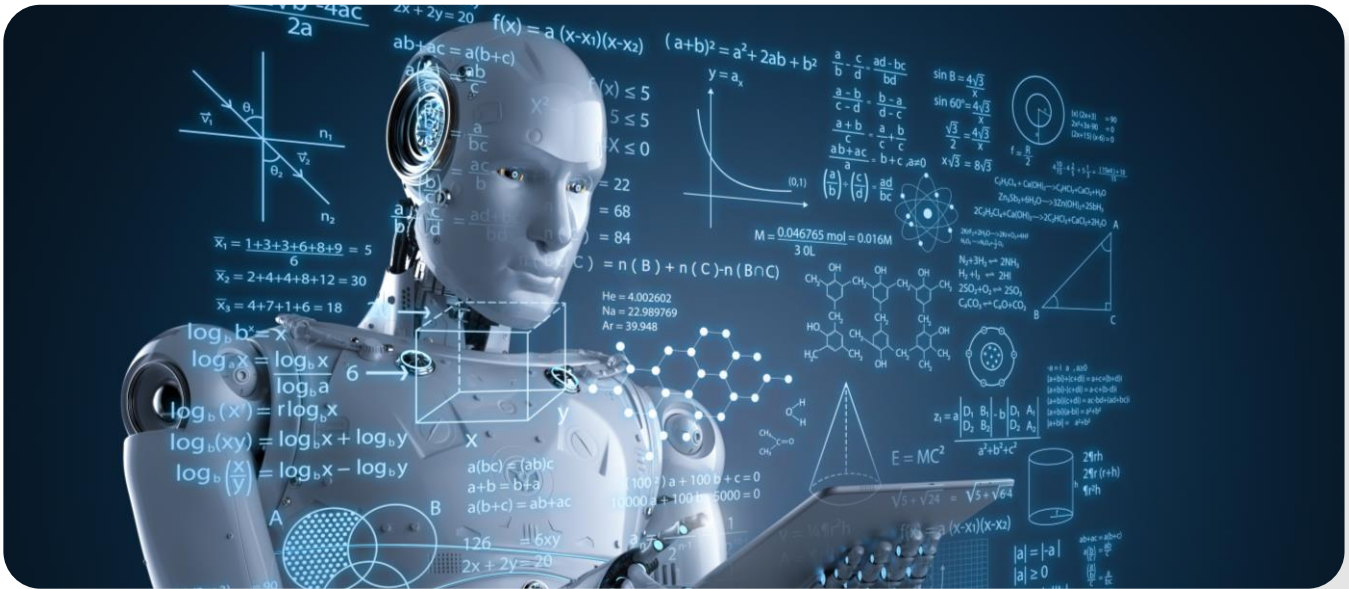
Descriptive Analytics

The answer to the question – " What happened "

This is the simplest class of analytics that allows you to drive insights by using big data into smaller units. These days, it is useful to bring information from social media tools and websites or from your sales and POS data like monthly revenue and geographical sales data, etc. Descriptive analytics utilizes and combines raw data from multiple sources to give valuable insights into the past by allowing businesses to decode the inner context.

However, the one reason why Descriptive analytics is misused for is to giving out the reasons for any trends or insights generated without digging much into the data. What we mean by is that with descriptive analytics you can simply signal the right or wrong of the data without explaining why and most people assume things, only with this data. Always remember that "Correlation is not Causation". This is why our Data Engineers & Consultants recommend that other types of data analytics should be combined with Descriptive Analytics before decision-making takes place.

Diagnostic Analytics

The answer to the question – " Why it happened "

Adding complexity and value to the Descriptive data analytics, we can use the insights and compare the data with more historical insights. In diagnostic analytics, we can solve critical business challenges by answering what and why has happened along with the root cause behind it.

For example, consider a business intelligence dashboard where you can drill down to the bottom layers of data to find the reasons and factors behind the same.

In diagnostic analysis, drill-down, data discovery, data mining, and correlations can be used to monitor performance and provide actionable information, which is generally used to identify the under-performing areas of business and work on remedying them. This level of analytics is the basic requirement according to analysts for every organization.

Predictive Analytics

The answer to the question – " What is likely to happen "

Predictive Analytics uses the findings of descriptive and diagnostic analytics to predict future trends, detect clusters and exceptions. It uses statistical models and forecasting to predict, for example, how your business could perform in the future based on the data from past performance and some parameters. This information can help you act on taking key decisions that help you move forward.

But one obvious and often forgotten information is that prediction has its own limitations based on the assumptions and the parameters that are chosen. The exactness of the models depends on various factors like the data and the assumptions taken.

The data has to have quality and information security and it is also important to have an advisor/vendor with technical and industry expertise to work on the models.

Prescriptive Analytics

The answer to the question – " What to do "

Prescriptive Analytics takes the whole process one step above Predictive Analytics and tells us what to do or how to do things that would eliminate the future risk or problem that is arising. It can also be useful to take advantage of a future trend. Prescriptive Analytics uses advanced tools and technologies, like machine learning to make the required analysis.

One of the key concerns of Prescriptive Analytics lies in the fact that in addition to needing historical internal data but also a lot of external algorithms and some business rules which makes it difficult to implement.

That is why, many organizations are reluctant to implement Prescriptive Analytics as they require a lot of highly technical expertise combined with industry expertise to take the appropriate assumptions in a level higher than that of predictive analytics.
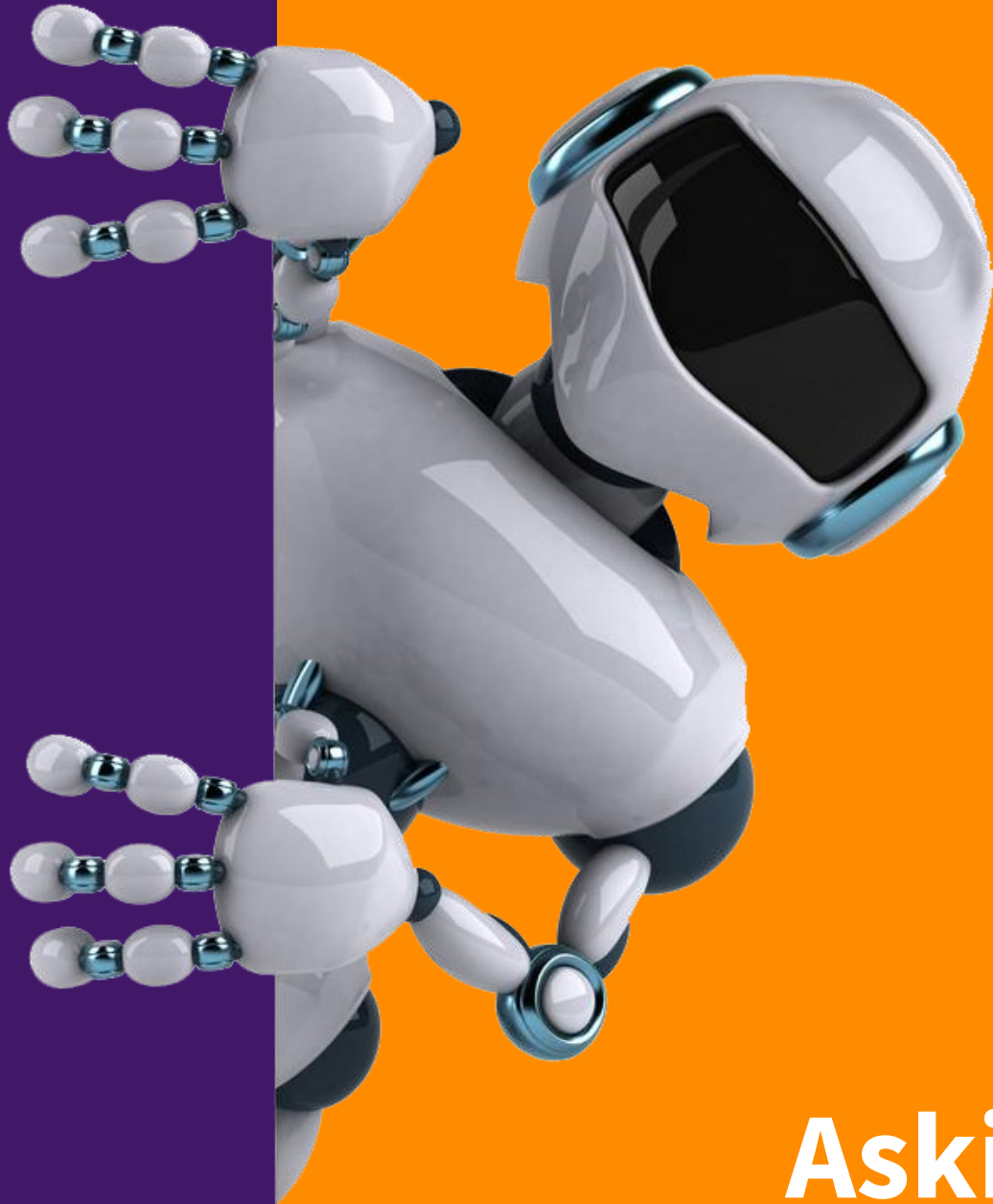
**Asking
the right
questions!**

01 How to choose the right tool?

Choosing an analytical solution requires a lot of reconciliation about the existing conditions and level of infrastructure of your organization. Some of the parameters we think about while choosing the tool are:

- Ease of use
- Investment capability
- Extensible across roles
- Integration with data sources and technology
- Support activities required
- Future capabilities

Depending on the answers for these parameters, you can further ask for demo, trial, or proof of concept for the tool you think would be right.

Ask yourself the questions :

- What is the current level of data infrastructure of your organization?

- What is the level of expertise you are expecting with data analytics?

- Do you want a platform for business analysts, data scientists, or for multiple users that can collaborate?

- Do you need to have report automation that triggers criteria-based notifications?

02 Is a Predictive Analytics investment good for my company?

Use Case Complaints Classification

- **Company:** Global Medical Device Manufacturer
- **Task:** Automate complaints labelling
- **Benefits Achieved:** Accuracy of 92% in classifying the complaints leading to a reduction in turnaround time by 60% and reduction in cost by ≈ 85%
- **Process Used:** Stemming transformations and TFIDF Calculations to create term matrix and XG Boost to predict classes in classifying the complaints

One thing companies have to understand is that Predictive Analytics is not a new concept. You might have been using some of the concepts like Regression which is a primary form of predictive analysis which is used for business purposes. In a similar manner, Predictive Analytics uses statistical processes to estimate relationship between variables.

For example, in e-commerce you can identify personalized trends or seasonal trends based on data to gain a sense of how developments will occur. And with predictive analytics having numerous applications in Churn Prediction, Credit Scoring, Fraud detection, Marketing especially Email marketing and offering personalized services, Inventory Management, etc.

03 Is it possible to link my Predictive Analytics with BI?

Yes, it is possible depending upon the Predictive Analytics and the Business Intelligence software that you are using. For example, you can connect Azure Machine Learning Studio and also use the visualizations of R& Python with Power BI. With AMLS, users can create predictive models by dragging, dropping, and connecting data modules and then visualize the results in Power BI. Or use R & Python to connect to Data Sources or access the Script Editor from the Visualizations.
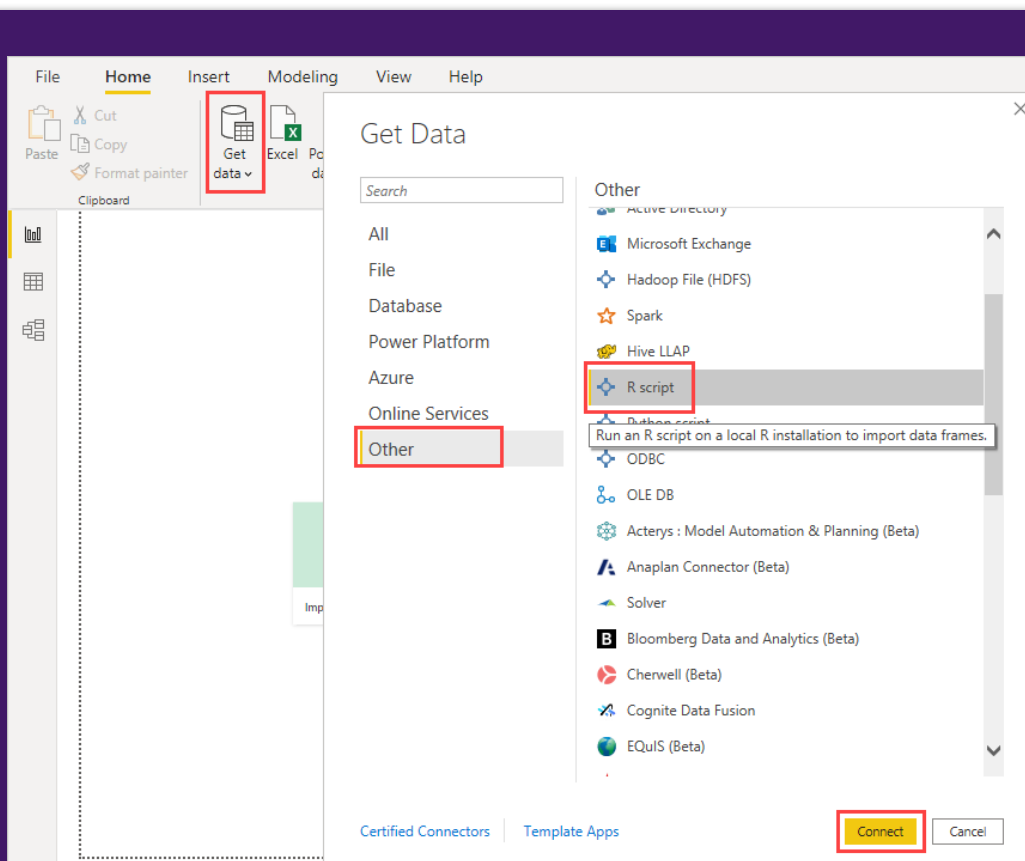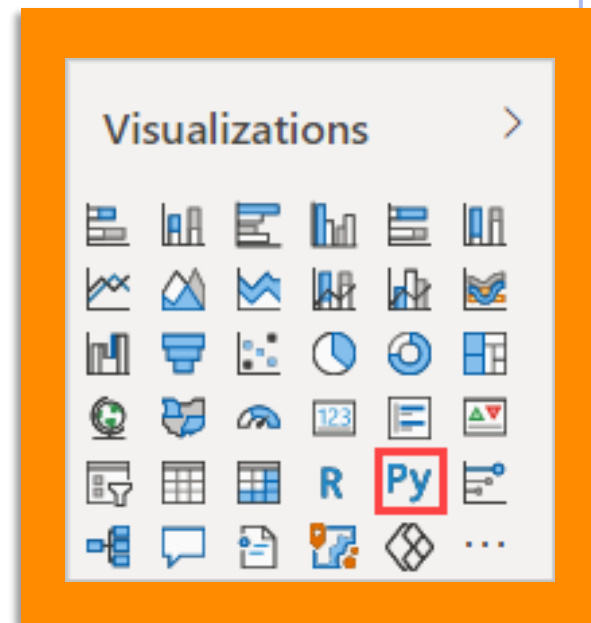
04 Is finding the right tool enough?

Finding the right tool is just the start of the implementation. You need proper Governance mechanism and a big data management plan to ensure the everyone in the organizations is using them.

The focus of organizations should be about using a consistent set of data to measure past performance and report for business planning which requires big data management for creating the consistent set of data in a way that is possible to be used by both Data scientists and Business users. With good data management you can avoid GIGO – Garbage in Garbage out – the term used to ensure that the information that is analysed is relevant. Because no matter how sophisticated the algorithms are it is important, you can only find patterns when they are not buried under the noise.

The next set of governance lies in asking the right business questions to both the vendor and users. You have to understand the question that lies at the heart of the business challenge you are trying to address.

For this choosing, a vendor with both technical and industry expertise might give you the advantage that you are looking for. If you're interested, we can have a detailed discovery workshop to understand your requirements.

05 What are the types of Predictive Analytics normally used?

Predictive Analytics is a group of mathematical and statistical techniques used to build accurate models. The Predictive process can be split into three main components:

- **Univariate non-linear models**
- **Monte-Carlo**
- **Regression**

Univariate non-linear models are useful to understand the non-linearity of the data and catch the outliers or account for the missing values. Monte Carlo techniques orchestrate the creation of hundreds of models which are built in parallel on different subsets of the data and are commonly used in financial planning and building simulations. Regression models both linear and non-linear are polynomial models which is data using different subsets of the training data to substantiate analysis while avoiding over-fitting of models.

In another way of classification, predictive models can be separated into parametric or non-parametric models. In these there are different varieties of models like Ordinary Least Squares,, Logistic Regression, Random Forests, Decision Trees, Neural Networks, Generalized Linear Models, Multivariate Adaptive Regression Splines, etc.
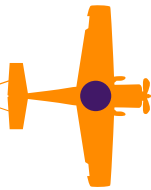
Who can use Predictive Modelling ?
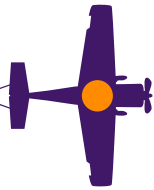
1. Marketing
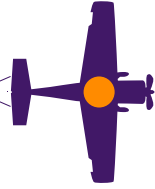
Marketing Executives can use Predictive analytics to analyse the profitability of Return on promotions
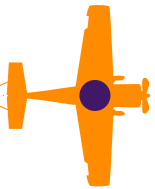
2. Finance

Predictive Analytics has a wide range of use cases in Finance ranging from Insurance Underwriting to Fraud Detection

3. HR

Increasing Churn and Attrition has become one of the major issues for Human Resource which can be predicted
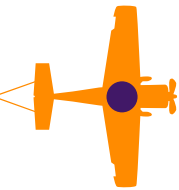
4. Sales

Pricing strategies can be optimized and CRM data can be leveraged to optimize the customer lifetime value

5. Supply Chain

Demand forecasting and Supplier Analysis can be done effectively with the help of Predictive Modelling
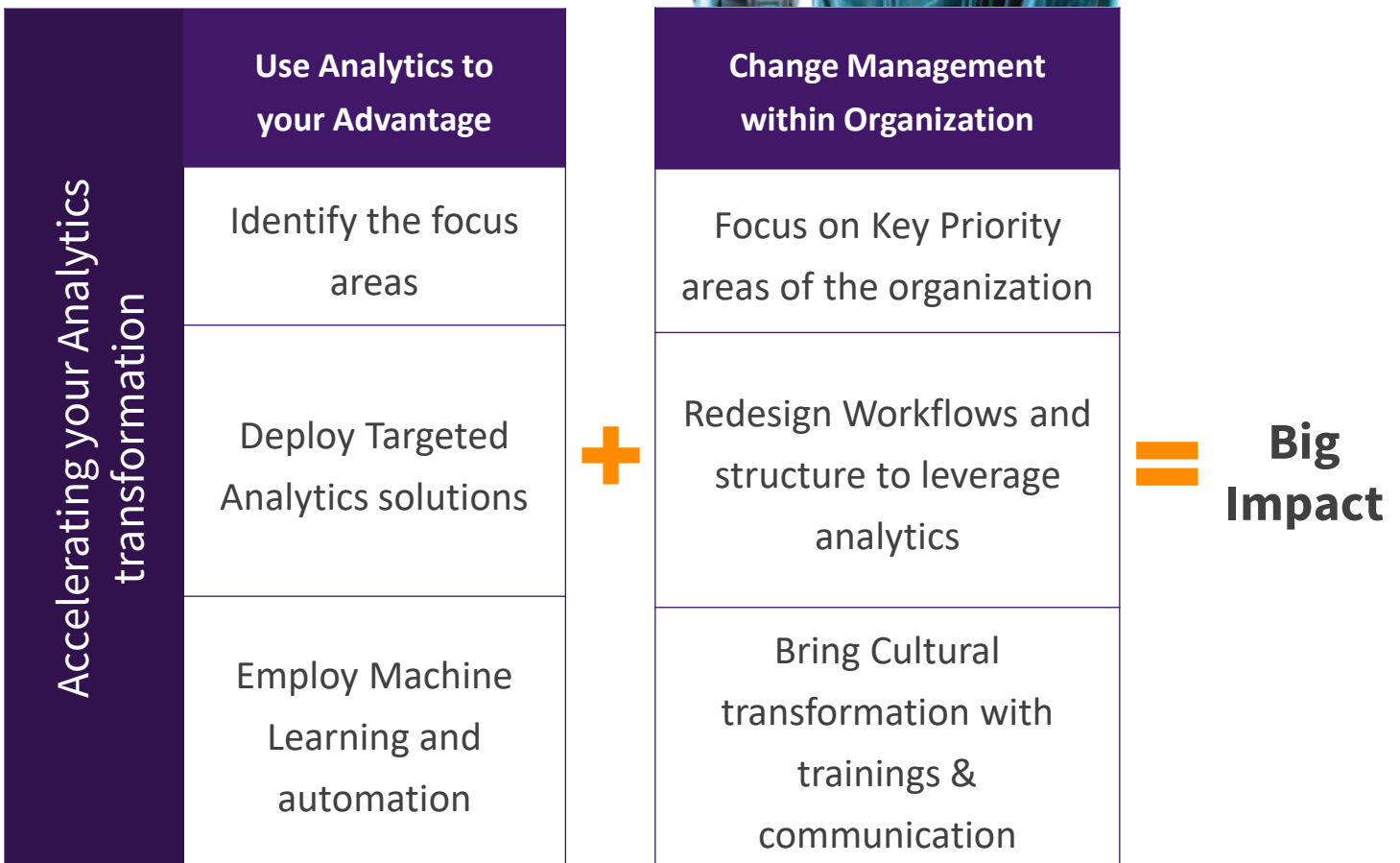
6. IT

IT Officials can Analyse streaming data from the Internet of Things (IoT) or analyse click patterns in real-time

How to achieve this?

Successful execution of digital transformation projects need people to be aligned with the outcomes and business goals, at the same time involves resources, and data assets to be onboard with the initiative, only then can it succeed and how the impact that businesses aim to have.

In this journey, especially with the implementation of initiatives like Predictive Analytics, we suggest thinking about both the change management and focus areas while working on the implementation.

Accelerating your Analytics transformation	Use Analytics to your Advantage		Change Management within Organization	
	Identify the focus areas	**+**	Focus on Key Priority areas of the organization	**=**
	Deploy Targeted Analytics solutions		Redesign Workflows and structure to leverage analytics	
	Employ Machine Learning and automation		Bring Cultural transformation with trainings & communication	

Big Impact

Our Expertise with Advanced Analytics

CHURN PREDICTION

Predicting employee turnover in the coming periods and the leading factors resulting to such trends and build a attrition-retention co-relator

DEMAND FORECASTING

Analyze the market demand and minimize lost opportunities due to untimely insights with What-if analysis based on cost reduction

TRADE SPEND OPTIMIZATION

To Identify the most efficient marketing campaign and allocate optimal promotional spending at campaign level.

WORKING CAPITAL ANALYSIS

Mix of descriptive and predictive analytics which can calculate Optimal Payment terms to predict the probability of customer default

SUPPLIER INTELLIGENCE

Risk scoring for different products and Overall Suppliers by considering the per unit price, satisfaction score, monthly price trends, etc.

CUSTOMER SEGMENTATION

Achieve more profound customer understanding and improve customer satisfaction by classifying customers for personalized marketing

How **Polestar** can help you

In this journey of choosing the right vendor for your Predictive Analytics and Advanced Analytics needs, we can help you solve your business problems with our strong partnerships & advantage with

▪ **Strong Consulting Background**

Illustrious colleagues from top notch consulting companies of the world with over a decade experience

▪ **Deep Domain Expertise**

Served clients globally in Finance & Capital Market, Retail, Infrastructure, Manufacturing, Utilities, & Hospitality

▪ **Quality Assurance**

Devised ways for multiple rounds of Quality check via Code reviews and Testing to ensure high quality standards

▪ **Quick Turn-around**

Agile methodology with a quick turn-around thereby reducing the "time to respond" to key business scenarios
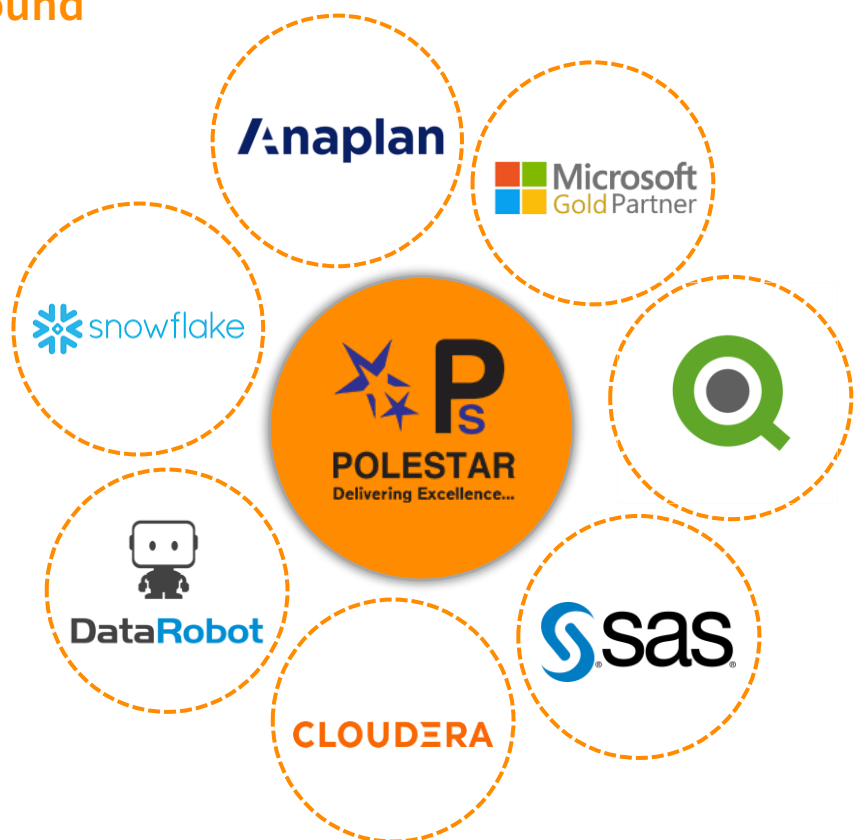
Thank You !

Get in touch and explore our Analytics solutions today!

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