Bridging Business & Machine Learning

Utilizing **Machine Learning** in daily operations

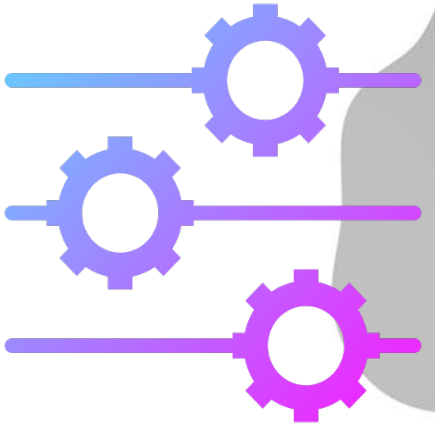
Topics:

- What are the **possibilities**?
- **Focus** Areas
- What **IF** analysis
- Bridging **Analysis** and **Action**

What are the **possibilities**?

What are the **possibilities**? (a few examples)

- Real-Time **Churn** Analysis
  - Detect and act on customers with likelihood to churn.
- **Product** Analysis
  - Adjust product portfolio based on user data.
- **Mass** Customization
  - Adjust variables on larger segments of customers at the same time.
- **Semi-Automated** Customer service
  - Generate and send offerings to customers exhibiting signs of churn.
  - Behavior data collection (How did the customer react to the offer).
- **Feedback** loop
  - Improve models with new data and information as it becomes available.



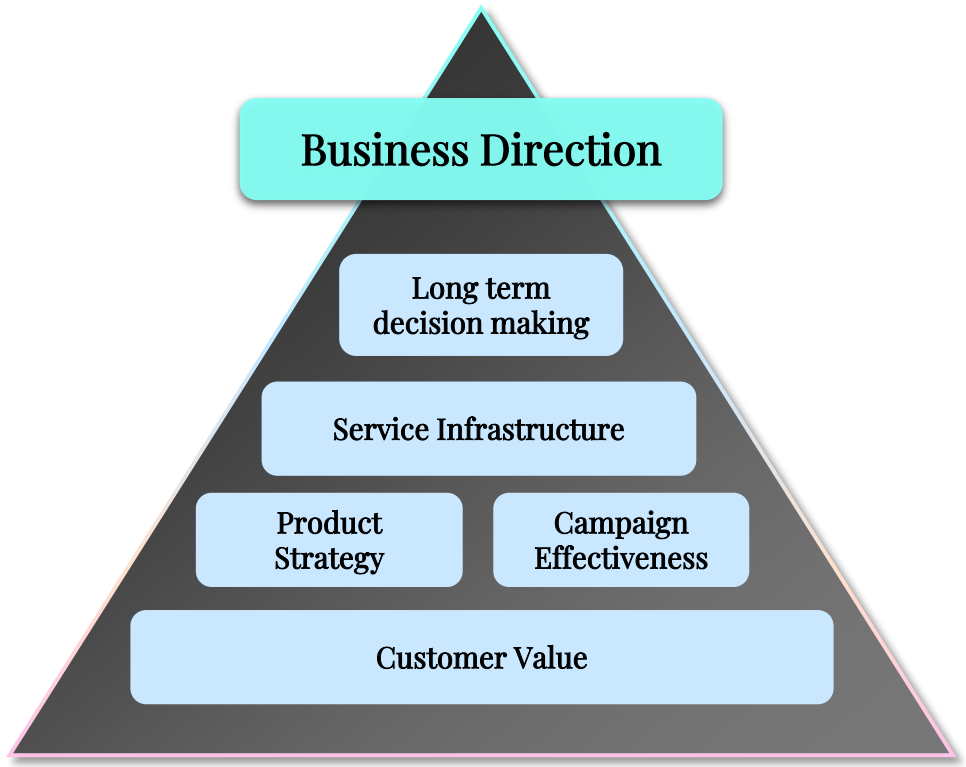
Focus Areas

Pains and Gains

Focus Areas

Pains and Gains

- **Customer Value**
  - Define and differentiate between high-value and low-value customers.
- **Product Strategy**
  - The importance of matching the right product to the right customer at the right time.
- **Campaign Effectiveness**
  - Utilize feedback loops to enable reinforcement learning.
- **Service Infrastructure**
  - Where is it beneficial to invest and why?



Customer Value

Common problems

- **High-Value vs Low-Value Customers**

  What are the identifiers of a high-value customer?

- **Retention Strategies**

  How do we ensure that we retain our high-value customers?

- **From Low-Value to High-Value**

  How do we effectively convert low-value customers to high-value customers without risk of churn?

Solutions

- **Churn Model**

  Utilize churn models to identify what identifiers cause customers to be at risk, identify customers at risk, and identify possible ways to increase customer value without churn.

- **Clustering Model**

  Introduce customer clustering models to leverage data on their purchasing behavior, frequency, and feedback to classify customers. Start predicting customer behavior rather than reacting to it.

Product Strategy

Common problems

- **Matching the Right Product to the Right Customer**

  Which products are most relevant to individual customers at a given time?

- **Optimal Timing**

  What is the best time to approach a customer with a product offer?

- **Dynamic Pricing**

  How do we adjust product prices in real-time based on demand, availability, and other external factors?

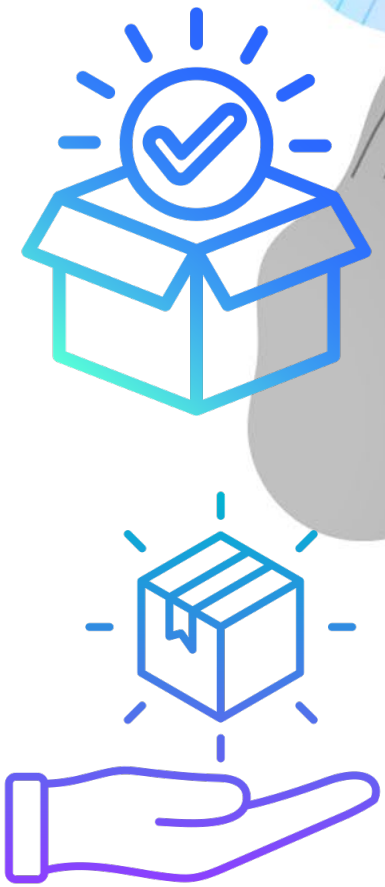
Solutions

- **Right-Product Model**

  Utilize historical data on customer product interactions and satisfaction to identify “Next Best Products”.

- **Dynamic Product Pricing Model**

  Leverage customer data in conjunction with churn models to adjust prices in real-time.



Campaign Effectiveness

Common problems

- **Campaign Effectiveness**

  How do the current campaigns perform?

- **Personalized Campaigns**

  What is the benefit of customizing campaigns to fit select customers or customer groups?

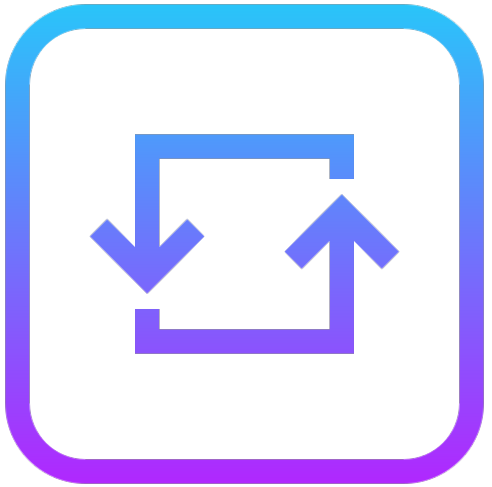
Solutions

- **Continuous Feedback Loop**

  Feed existing models with new follow-up data to enable reinforcement learning, refining and optimizing future predictions

- **Customer Behaviour Model**

  Leverage customers trends, preferences and behaviour to enhance engagement



Service Infrastructure

Common problems

- **Traffic Analysis**

  Will there always be sufficient network bandwidth to accommodate expected traffic?

- **Investment Decisions**

  Should focus be on upgrading existing areas with a healthy consumer base, or should the investment be allocated to emerging markets?

Solutions

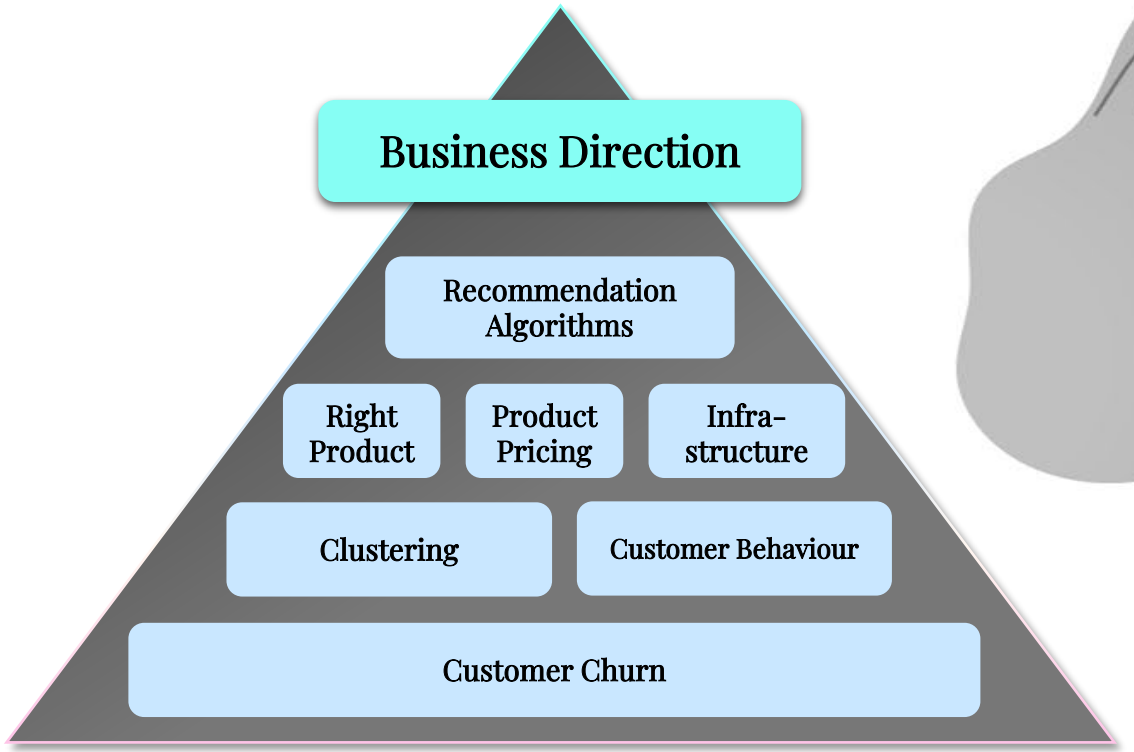
- **Predictive Infrastructure Model**

  Identify areas of future high demand, enabling near-real-time reallocation of resources.

Combining the focus areas

Towards Strategic Decision Making

- **Holistic Approach:**
  - Merging distinct models to create a unified base to build business strategy.
  - From specific models like customer churn analysis to overarching business directions.
- **Interconnected Systems:**
  - Not operating in silos but as parts of a comprehensive system.
  - Ensuring every decision made is backed by multiple data-driven insights.
- **Key Analytics Areas:**
  - **Customer Churn**: Analyzing patterns and reasons why customers leave.
  - **Clustering**: Segmenting customers or products into distinct categories for targeted strategies.
  - **Customer Behaviour:** Monitoring and analyzing user interactions to drive business changes.
  - **Right Product & Product Pricing**: Ensuring optimal product offerings and pricing strategy.
  - **Infrastructure**: Establishing robust systems and technologies to support customer base.
  - **Recommendation Algorithms**: Enabling the system to provide recommendations based on insights from other models.

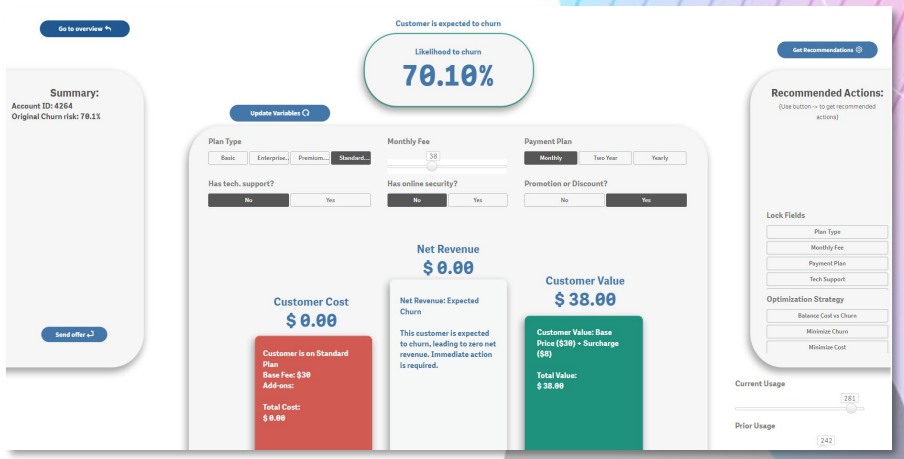


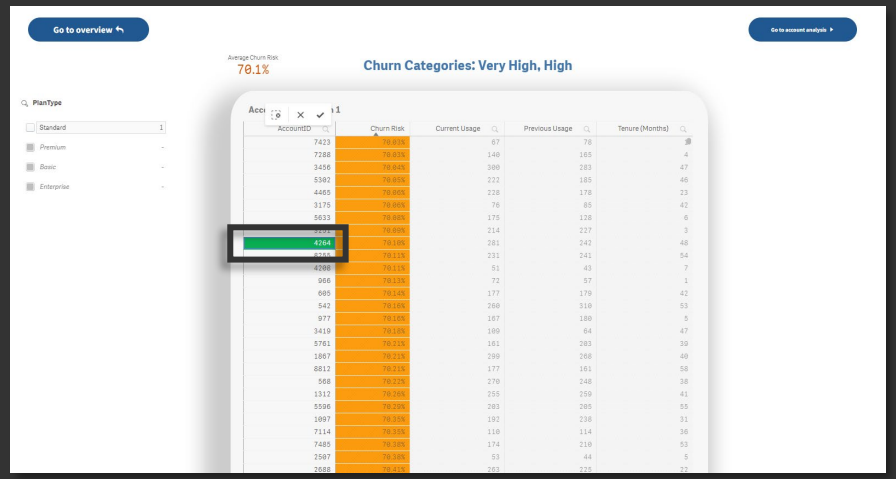
What IF analysis

What IF analysis

- **Leveraging What If Analysis**
  - Explore how a model's predictions changes under different conditions or input values. Thereby allowing users to identify “What Would Happen If” scenarios.

- **Sensitivity Analysis**
  - **Churn:**
    What factors are key in regards to likelihood of churn?
  - **Product Selection**:
    What products lead to higher predicted customer satisfaction?
  - **Supply Chain:**
    How sensitive is the supply chain in regards to delays, manufacturing times and material costs?



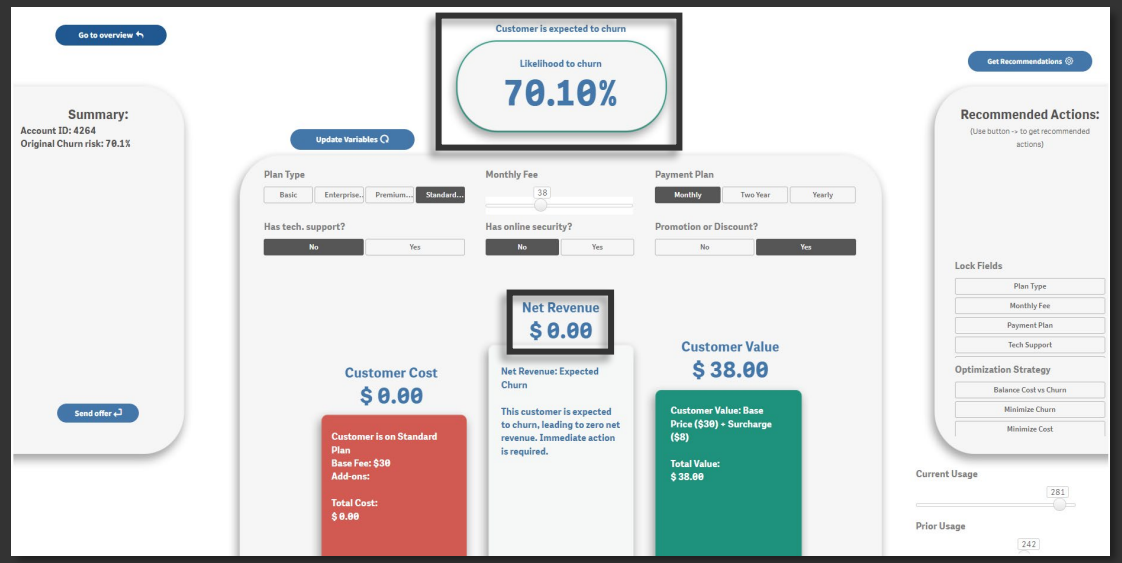


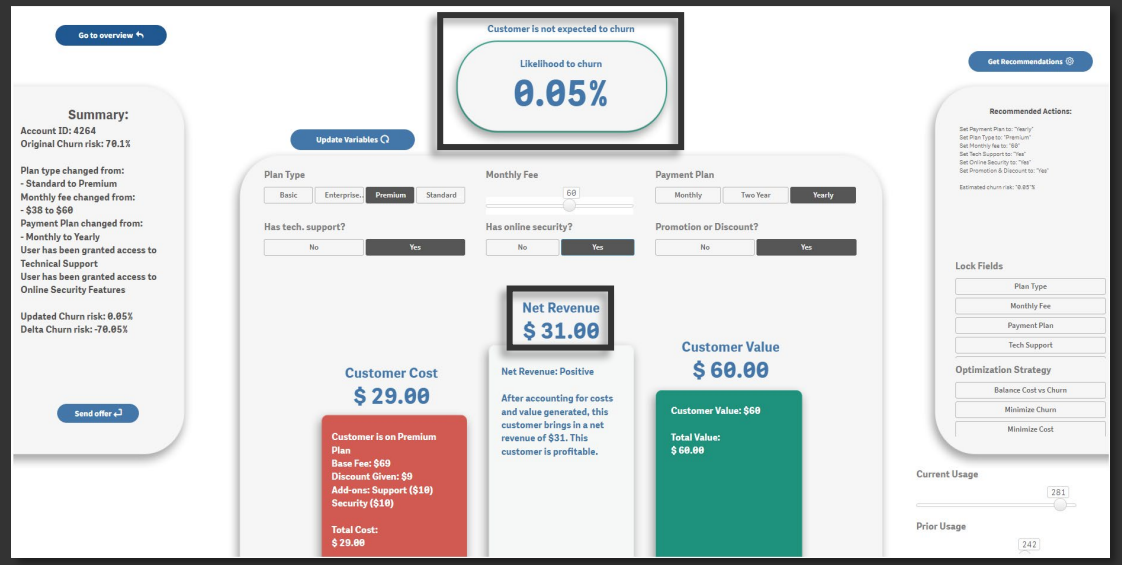
What IF analysis – Case Study I

The dashboard for a tele company shows that 40% of their current income is in the risk category.

An analysts decides to investigate some of the accounts in the Risk group.

Account 4264 is selected for a closer inspection.

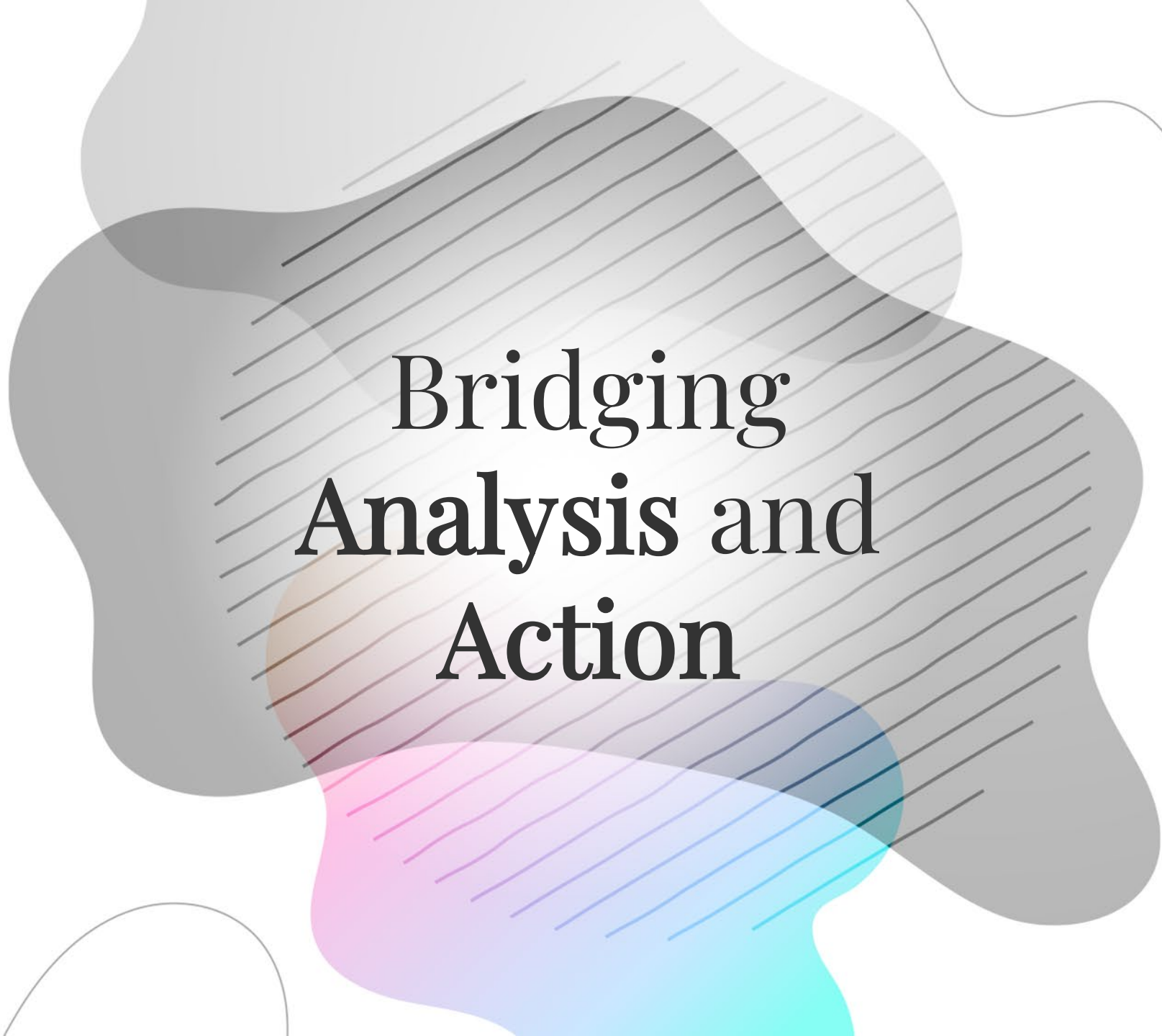




What IF analysis – Case Study II

The analyst decides to utilize the systems recommendation algorithms to find the best suitable combination for the customer to reduce churn.

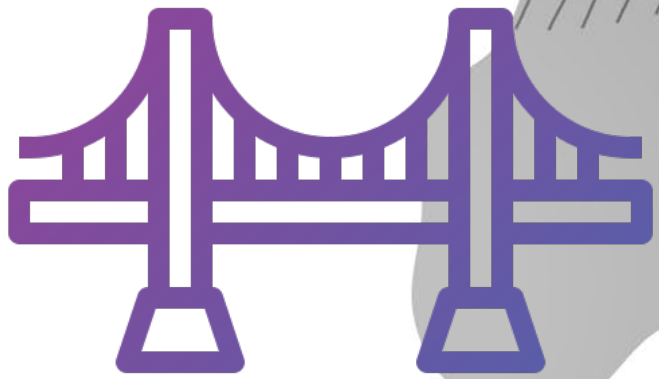
The analyst inputs the recommended actions, and from doing so, the customer is now generating value for the company and is not likely to churn.


Bridging
Analysis and
Action

Bridging **Analysis** and **Action**

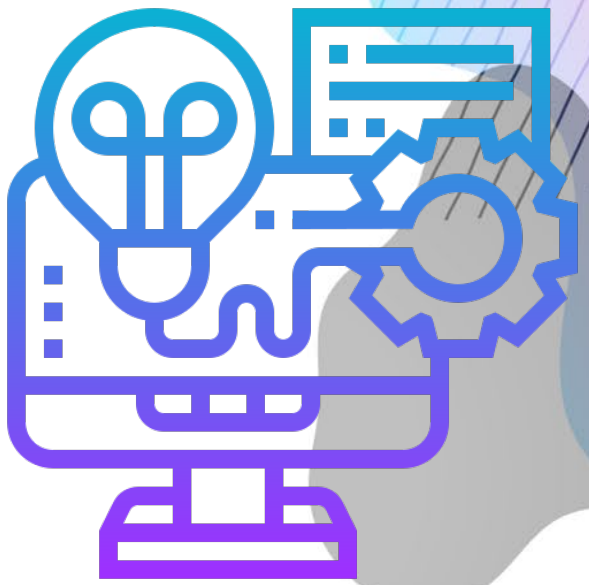
- **Data-Driven Decisions:** Leveraging machine learning insights to fuel strategic moves.

- **Steps to Transition:**
  - Understand ML Use-Cases: From Real-Time Churn Analysis to Product Analysis.
  - Find Strategic Focus such as: Customer Value, Product Strategy, Campaign Effectiveness, Infrastructure.
  - Unified Strategy: Interconnecting systems and models for holistic insights.
  - Processing outcome: Using "What if Analysis" to anticipate and measure results. Implementing various recommendation algorithms to extract knowledge from models automatically. Integrating the system with NLP models to automate offerings.



Maximizing ML's value

- **Best Practices:**
  - Collaboration: Integrate insights from various focus areas.
  - Agile Approaches: Continuously refine ML models based on feedback.
  - Prioritize High Impact Actions: Align efforts with business goals.
- **Challenges:**
  - Analysis will be inaccurate if data is inaccurate
  - Integrating diverse ML models.
  - Aligning tech infrastructure with strategic needs.
  - Resistance to adopting AI/ML-driven decision-making.



Concluding Insights

Concluding Insights

- **Integrated Approach**
  - Combining various ML use-cases enables a comprehensive view of business operations.
- **Strategic Leverage**
  - By focusing on key areas like Customer Value and Product Strategy, businesses can maximize the potential of analytics.
- **Future-Ready**
  - Implementing interconnected ML models helps make businesses agile and prepared for future challenges.
- **Continuous Evolution**
  - The importance of ongoing refinement – to adapt and innovate.

For Questions, demos or other inquries reach out to us!

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