



HEALTH METRICS - SAAS

Capstone Project

Crystal Grant - Lead Data Scientist



01.

INTRODUCING: CRYSTAL GRANT

Data Scientist's Background

02.

SAAS & KPIs

Importance of Health Metrics

03.

FOCUS: CUSTOMER SUCCESS

Strongest Business Impact

04.

EXPLORATION & DISCOVERY

Deep Dive into the Data

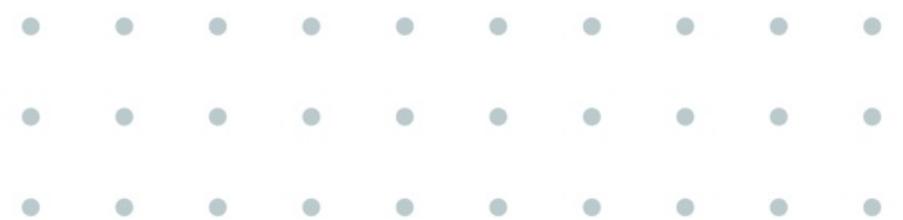


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METRICS & FEATURES

Focus on the “right” health metrics

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IMPLEMENTATION

Utilize the findings



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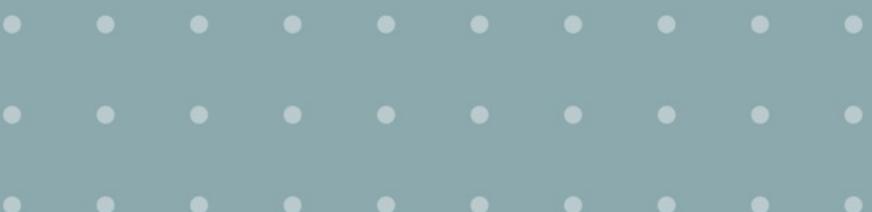
01.



HELLO!

"After years of working in hotels - I knew I need to leave - but I couldn't really, so I found a way to learn something new and continue my passion as a hotelier"

-Crystal Grant



MEET THE TEAM

- Florida State University & VCU by IOD
- Hotel Management
- Hospitality Tech (SaaS)
- Project & Account Management
- SQL Certification
- VCU powered by Institute of Data

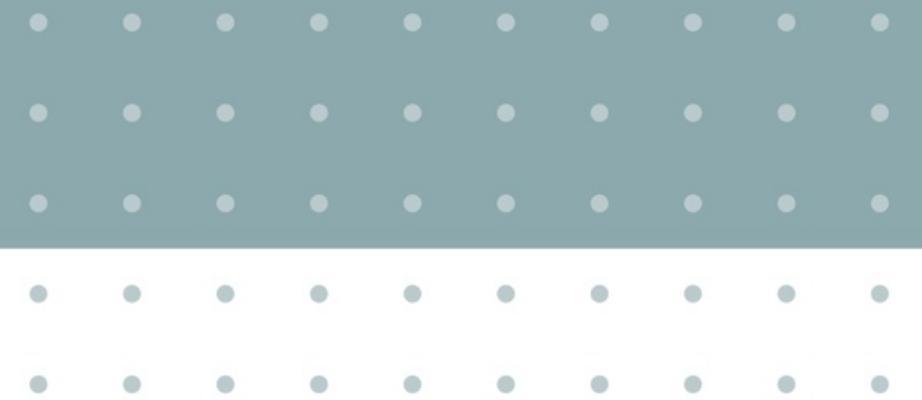
Crystal Grant
DATA SCIENTIST



02.

SAAS & KPIs

*Understanding the importance of
Health Metrics*



WHAT IS SAAS?

Software as a service (SaaS) allows users to connect to and use cloud-based apps over the Internet.

The core principles of SaaS is, offering a scalable, subscription-based model for content consumption.



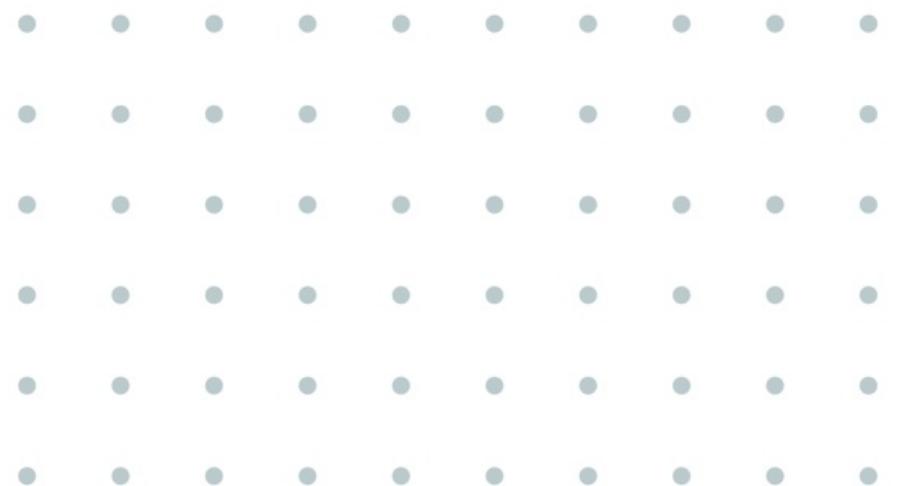


SOLUTION

Health Metrics and Scores become critical to both efforts. Identify when a customer is at risk & Drive success to minimize risk

PROBLEM

Landing and Maintaining:
The goal is to get more
customers to sign on AND
keep the customers you
have Or not lose them - *are
those two the same?*





Connected

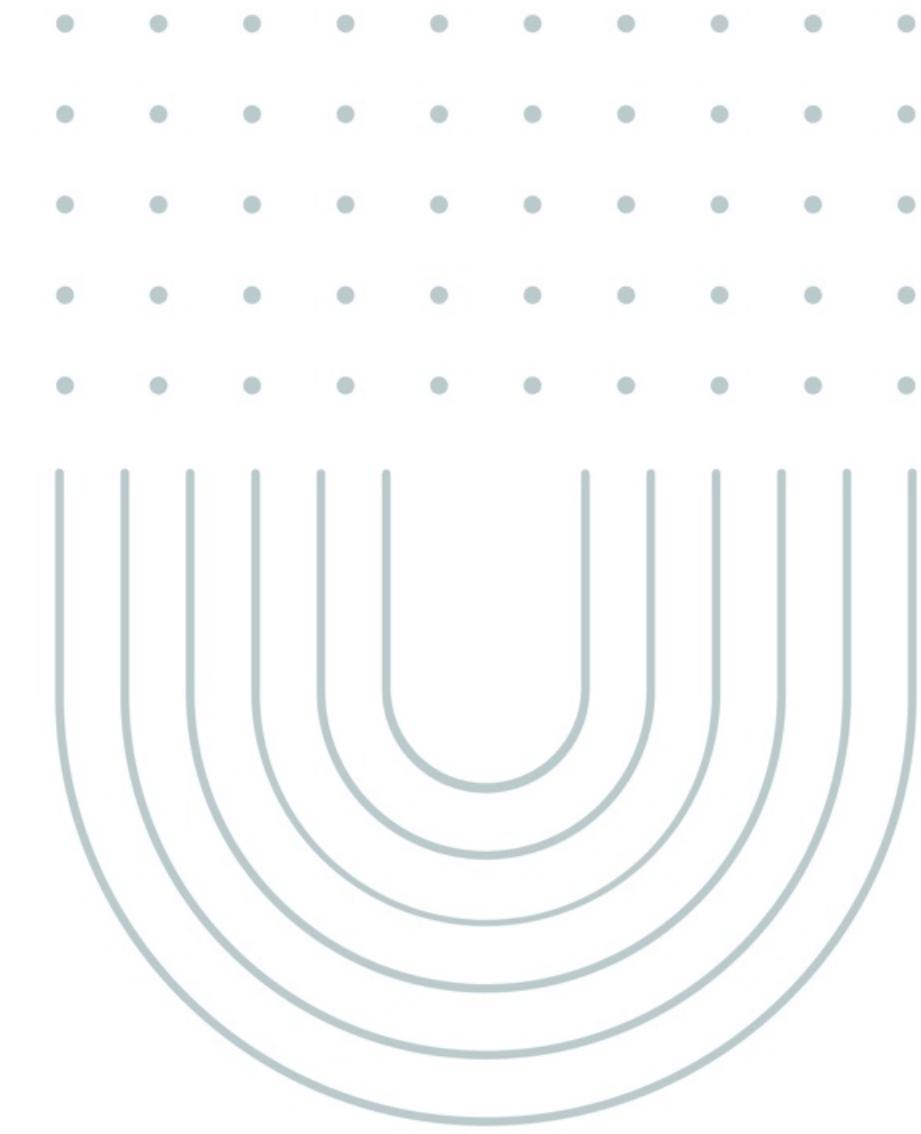
The role is critical throughout the entire customer life cycle



Understanding the Challenges

SaaS history and the growing field

**CUSTOMER
SUCCESS**



03.

FOCUS: CUSTOMER SUCCESS

Business Impact



BUSINESS

Business Question: Can we identify key areas that determine customer success and accurately assign a health score?

WHY?

Value: Assigning the correct health score will allow for the application of the right playbook to keep that customer.

Data Question: Which metrics are the most important in identifying account health & can they predict health?

DS



DATA

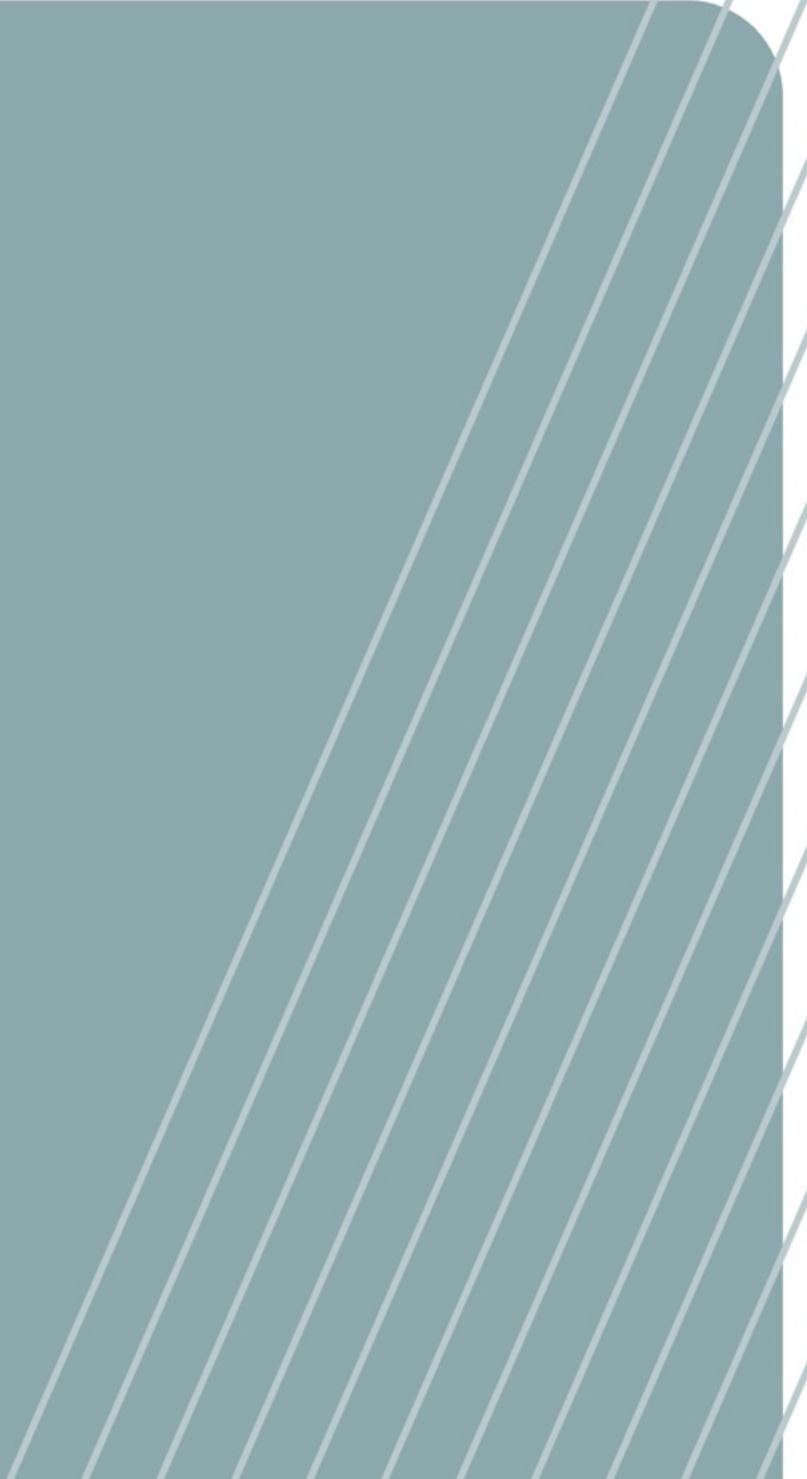
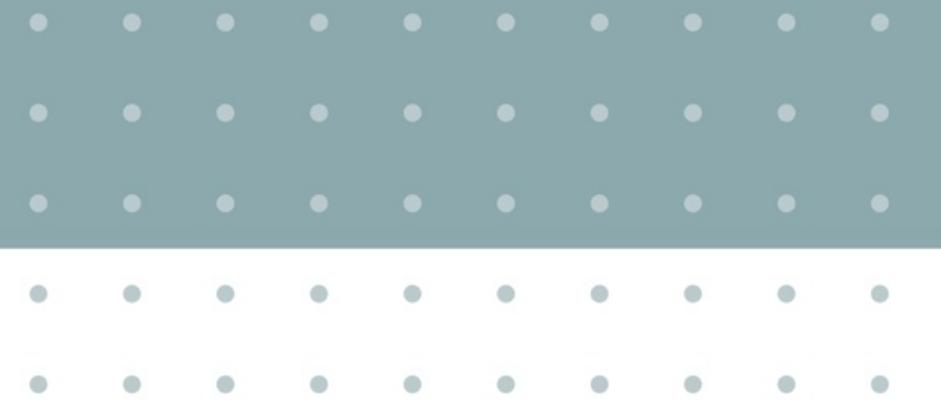
- User & Account Data
- 7 Total Data Sets
- 1M user profiles
- 1200 Accounts
- Directly Sourced from the customer MetaData



04.

EXPLORATION & DISCOVERY

Data - Deep Dive



OUR FINDINGS

65% CHAT/WAU
Increasing your activity to 65% increases odds of success



85% ACTIVATION
Increased Monthly Usage amongst all groups

75% MAU
Healthy Accounts are 100% above this mark

550 AVG SESSION
Ideally users in each account average over 500+ Sessions

KEY LEARNINGS

CHATTING

When users are chatting
there is a positive effect
on Activation

+20%

ENGAGEMENT

Users who Post also
Comment - Activity
creates more value

+42%

COMMS

Chatting is the most
impactful platform
feature

+20%

PROCESS

VP CS

Use CS to reduce Churn
and optimize renewals

HEALTH KPIS?

Determine Key Health
Indicators

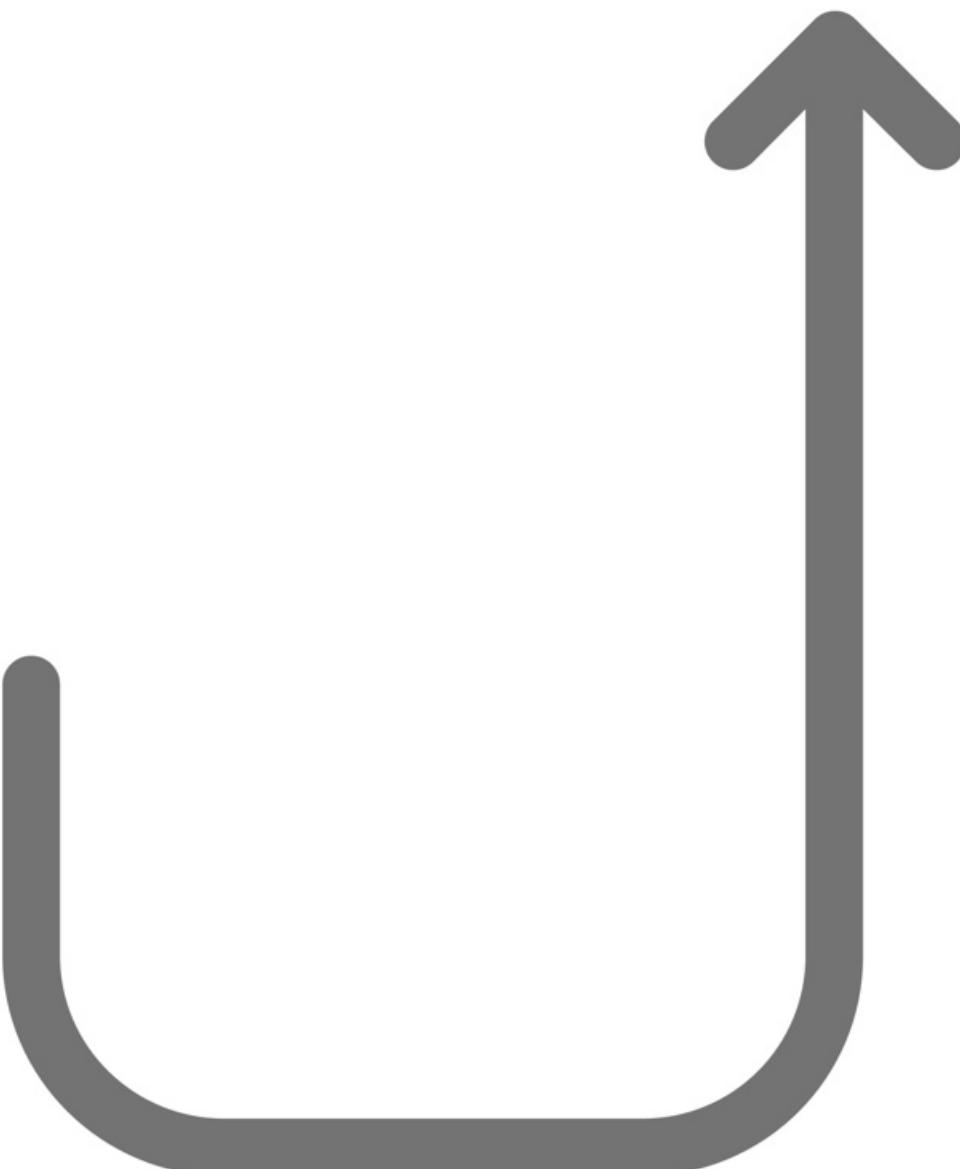
EDA + CLEAN

Reduce Data, eliminate
features, convert data
& Scale

DECISION
TREE

NEURAL
NETWORK

PCA
+
KNN



“NOTHING IS MORE
IMPORTANT TO US THAN
MAKING SURE EVERY
CUSTOMER IS SUCCESSFUL
IN OUR SERVICE.”

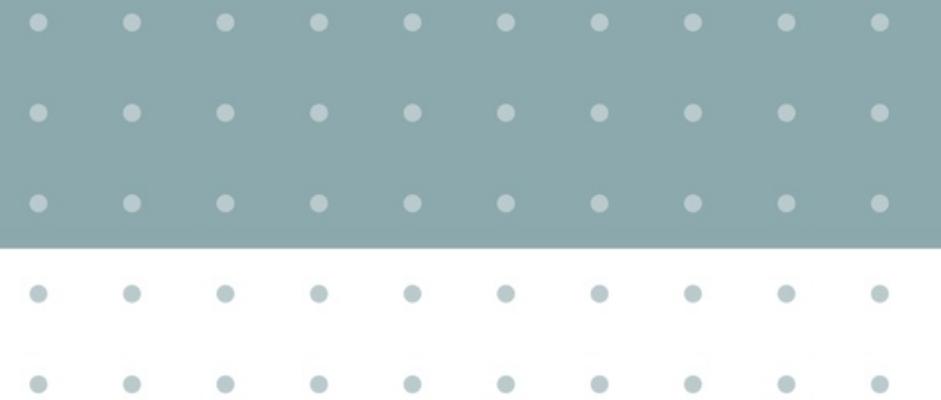


*Marc Benioff
Salesforce Co-Founder*

05.

METRICS & FEATURES

Health Metrics - Features



FEATURES +

Identify Strongest Metrics

Forward Feature

WAU = Most Valuable

WAU
Average % of Returning Users

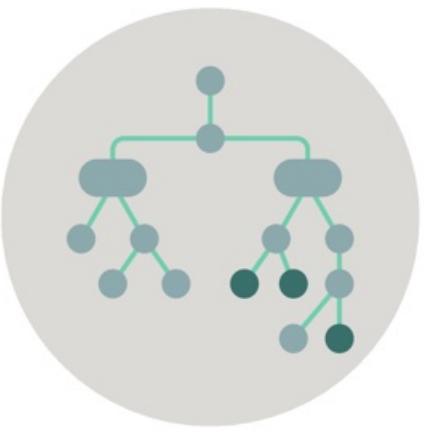
PCA

WAU = Most Valuable

WAU Trend
Change in Returning users over a 28 Day Period

Activation
% of Users vs Created

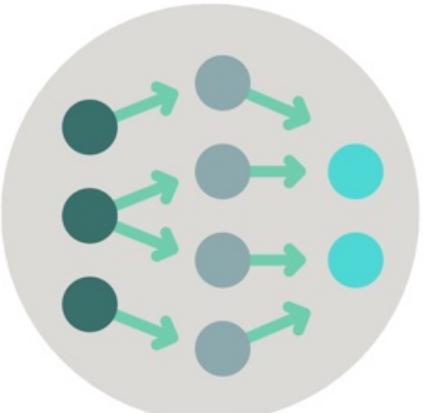
Chats
% of Users who utilize chatting in the app



Decision Tree

Low Accuracy

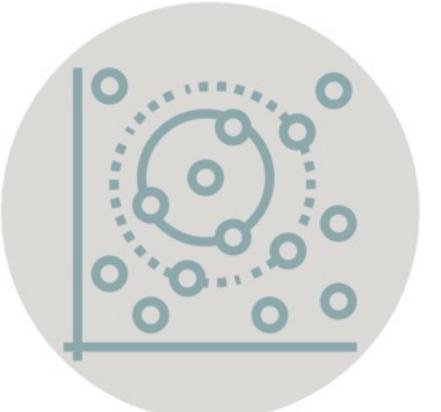
Not a reliable Model to utilize when compared with the others.



Neural Network

99% Accuracy

Most accurate with predictions + reliable
Best Model based on Data



K Means + KNN

Classification was the original intent – both models chosen for clusters.

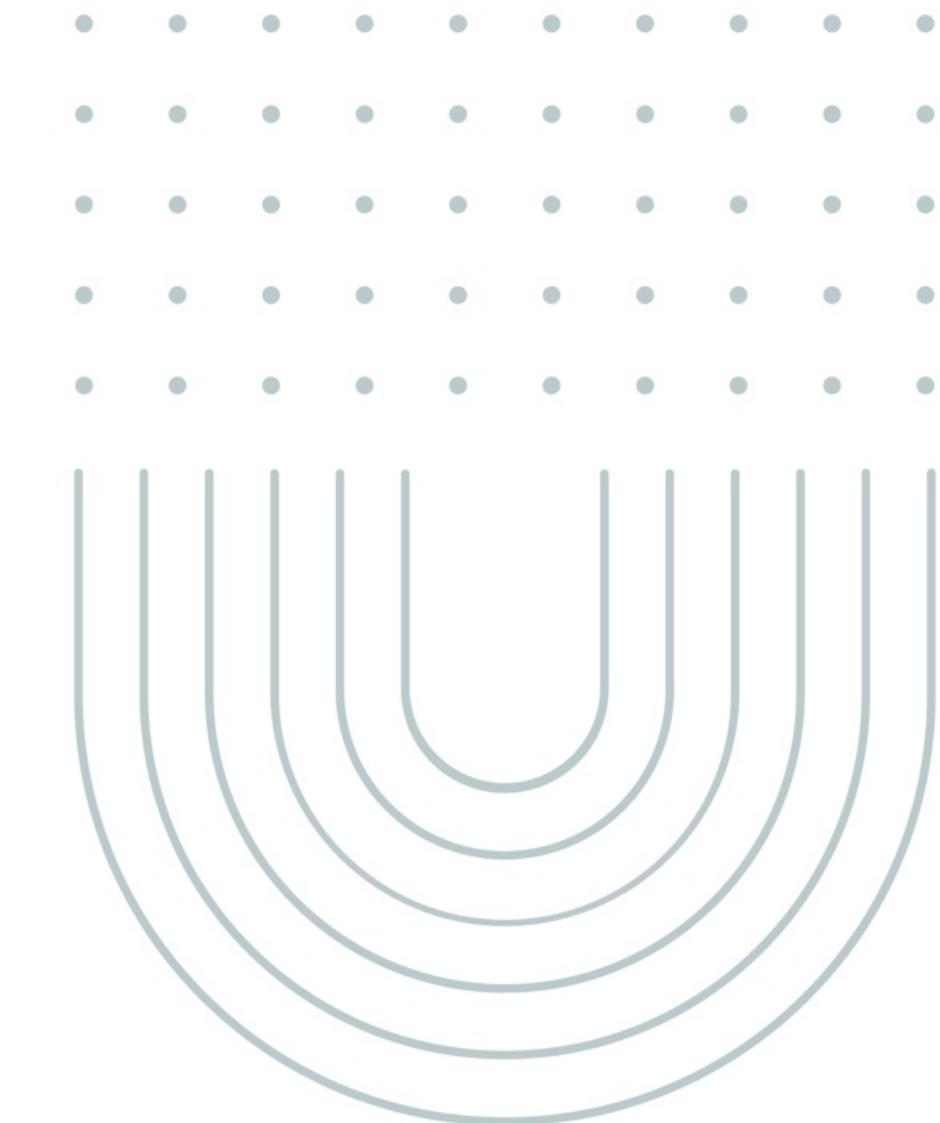
Maximized with PCA – to determine k=3



PCA

Bonus implementation – along with Elbow curve

Reducing the features to 2 – Validated by Feature selection.



MACHINE MODELS

APPLICATION

SUCCESS

These models will be indispensable to CS Teams

LIFECYCLE

From Onboarding to set goals → Success to measure success

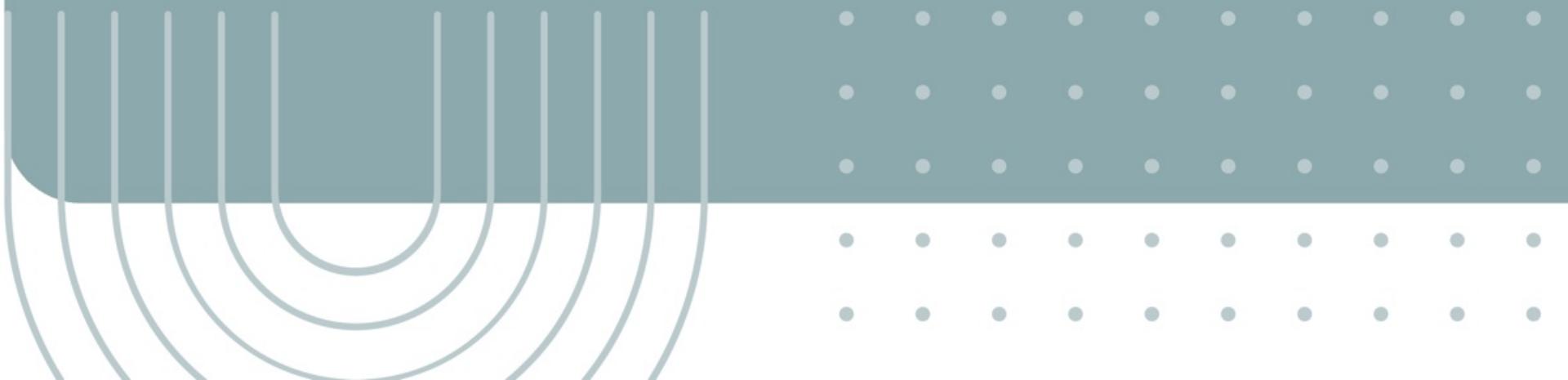
↓CHURN ↑NRR

Account Teams can activate the right steps to maintain customer base

06.

IMPLEMENTATION

Data in Practice



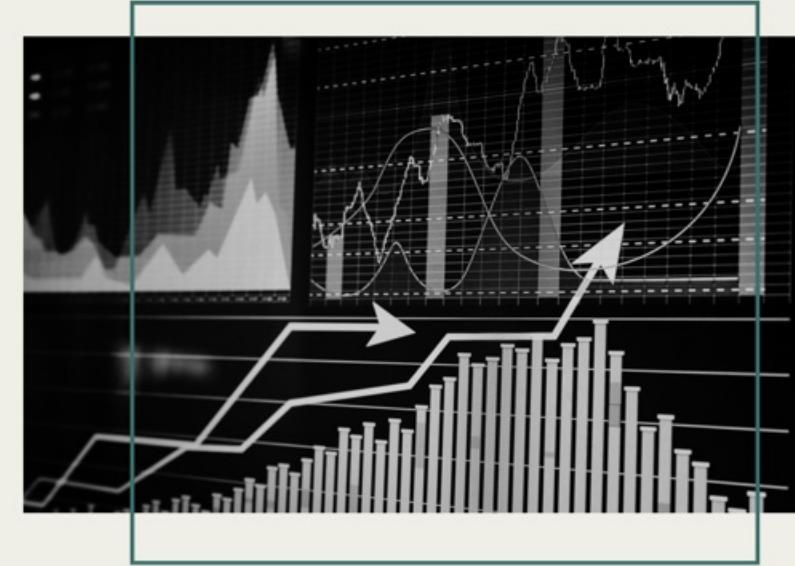
SUMMARY



Business Question **Accurate Health Metrics**

After achieving a record high churn rate in Q4 2024 - SaaS company - needed to find a solution to a common business problem.

How do we keep the customers we have and guarantee their success?



Data Analysis Benchmarking

By creating understanding health and the various factors that contribute to it.

We learned that there are target health scores and trends that can be clear indication of an unhealthy account or the signs of health.



Machine Models Account Status

Using feature engineering - we narrowed the features down to the highest predictors.

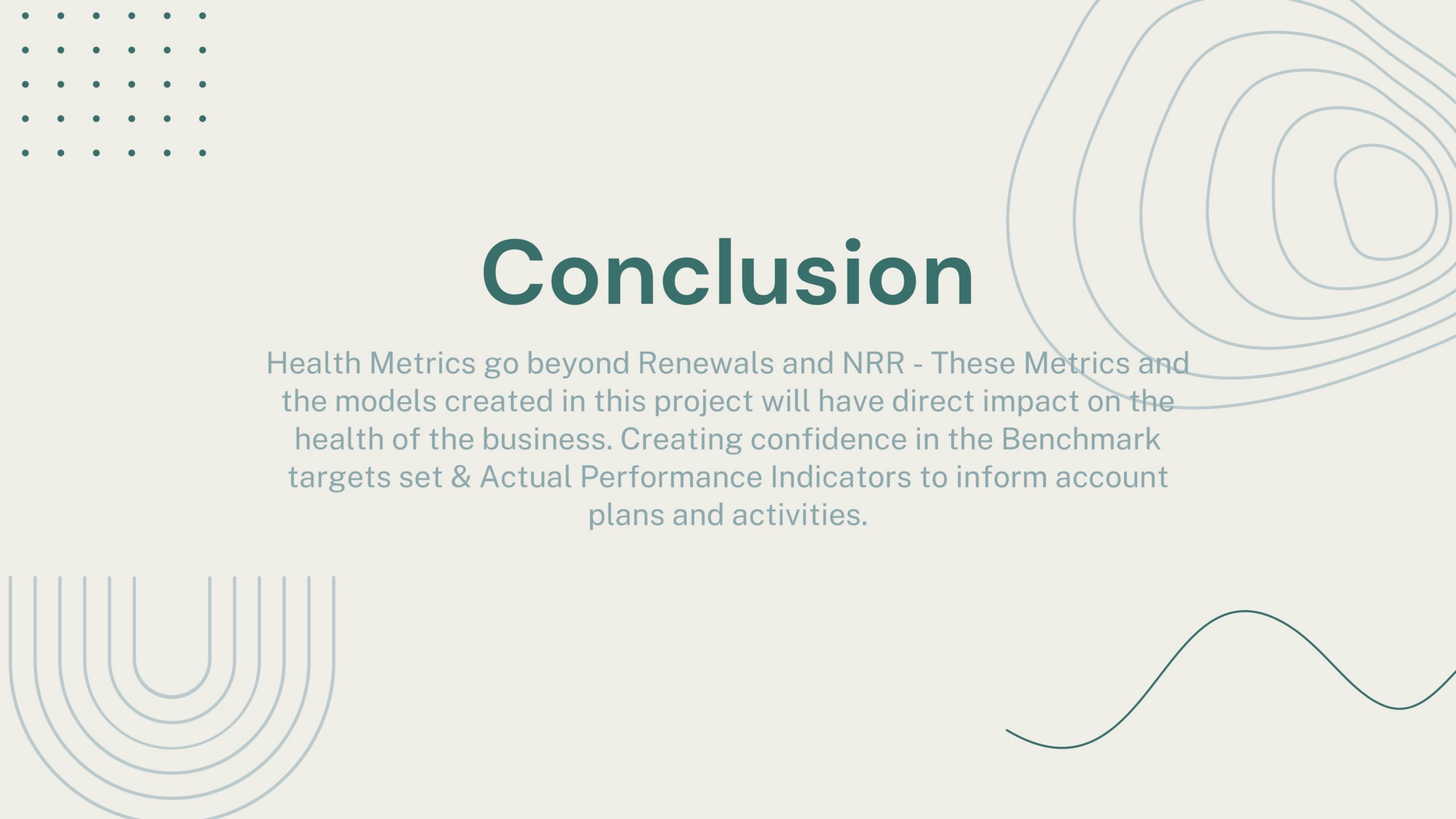
Account Status can be predicted using WAU, Chat data, trends and Activation rates.



Predictions Health Metrics and Health Scores

With the help of our models Onboarding CSMs are now able to guide teams to success.

While Success CSMs & Account managers can better identify the right course of action for renewal and optimization.



Conclusion

Health Metrics go beyond Renewals and NRR - These Metrics and the models created in this project will have direct impact on the health of the business. Creating confidence in the Benchmark targets set & Actual Performance Indicators to inform account plans and activities.



THANK YOU

Have any question?

Crystal Grant
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Beekeeper

