



# MASTERING VOICE OF THE CUSTOMER PROCESS (VoC) IN AUTOMOTIVE INDUSTRY



# SOMMAIRE

EXECUTIVE SUMMARY	3
INTRODUCTION	4
<b>1</b> VOICE OF THE CUSTOMER (VoC) IN AUTOMOTIVE INDUSTRY	5
<b>2</b> WHAT IS BUSINESS INTELLIGENCE (BI) OF THE VOICE OF THE CUSTOMER (VoC) IN THE AUTOMOTIVE INDUSTRY ?	6
<b>3</b> WHAT WOULD BE AN EXAMPLE OF A DIGITAL USER EXPERIENCE JOURNEY WITHIN A DEALERSHIP SETTING?	7
<b>4</b> WHAT TYPE OF ARCHITECTURAL LANDSCAPE COULD ENCOMPASS IT?	9
<b>5</b> ACHIEVING THE VoC	11
5.1 Hierarchical clustering for VoC	12
5.2 Similar Cases Detection	13
5.3 On Demand Account (ODA)	14
5.4 Data Visualisation using tableau	15
5.5 After Insight: Actions	15
CONCLUSION	16
APPENDIX	17





## EXECUTIVE SUMMARY

This article highlights the importance of understanding customer feedback in improving customer experience and loyalty in the automotive industry. The voice of the customer (VoC) is a process that involves listening to customer feedback, interpreting it, and taking actions to improve customer experience and retention.

Utilizing the Voice of the Customer (VoC) can enable automotive manufacturers to enhance their competitiveness, strengthen customer loyalty, and improve their brand image. The return on investment (ROI) of VoC in the automotive manufacturing industry can be substantial, leading to better product quality, greater customer loyalty, improved brand reputation, and lower costs

Customer feedback data is collected from different sources, which vary depending on the type of business. The integration of Salesforce Service Cloud, CRM analytics, Snowflake, Tableau platforms coupled with an RServer creates a robust VoC architecture that effectively manages customer feedback data and enhances customer experience.

In the forthcoming paper, we will conduct an exhaustive analysis of three use cases that are connected to this integrated architecture. These use cases include hierarchical clustering for Voice of the Customer (VoC), identifying similar cases in automotive customer claims, and On-Demand Account (ODA).



# INTRODUCTION

The automotive industry is highly competitive, and customer satisfaction is a critical factor in determining success. By understanding and responding to customer needs, preferences, and expectations, automotive manufacturers can design and produce vehicles that meet and exceed customer expectations, resulting in increased customer loyalty and market share.

In our context VoC refers to the feedback and opinions of customers regarding the quality, performance, features, safety, and overall satisfaction of the vehicles they purchase. By collecting, analyzing, and acting on customer feedback, manufacturers can improve their products and services, as well as their customer support.

Manufacturers use various methods to collect the VoC, such as surveys, customer feedback forms, online reviews, focus groups, and social media. The collected data can be analyzed to identify trends, patterns, and areas for improvement.

For example, if a significant number of customers report issues with a particular feature or component, the manufacturer can investigate the issue and take corrective action to improve the quality and reliability of their vehicles.

## WHAT IS THE ROI OF THE VOICE OF THE CUSTOMER IN THE AUTOMOTIVE INDUSTRY?

Using the Voice of the Customer (VoC) in automotive manufacturing can result in significant Return on Investment (ROI). By incorporating customer feedback into the design and production process, automotive manufacturers can improve their products' quality, increase customer loyalty, enhance brand reputation, and reduce costs.

To gather customer intelligence, various data sources are mined using a four-step procedure to identify and glean helpful insights from them. The processing of large amounts of information, both structured and unstructured, is involved in the VoC process.

This paper demonstrates how to implement specific tools to identify all your company's sources of voice, extract them, analyze them, and channel high-value insights to requisite departments. Additionally, it shows how to prepare action plans, such as distortion problems, elimination of pain points or generation of wow effect, based on VoC conclusions.

# 1

## VOICE OF THE CUSTOMER (VoC) IN AUTOMOTIVE INDUSTRY

Most customer interactions occur via phone calls, emails, SMS and chat. Additionally, a large quantity of vital information relating to a customer is stored in the form of structured customer records, unstructured contract notes, user manuals, internal correspondence etc.

### VoC VOICE OF THE CUSTOMER

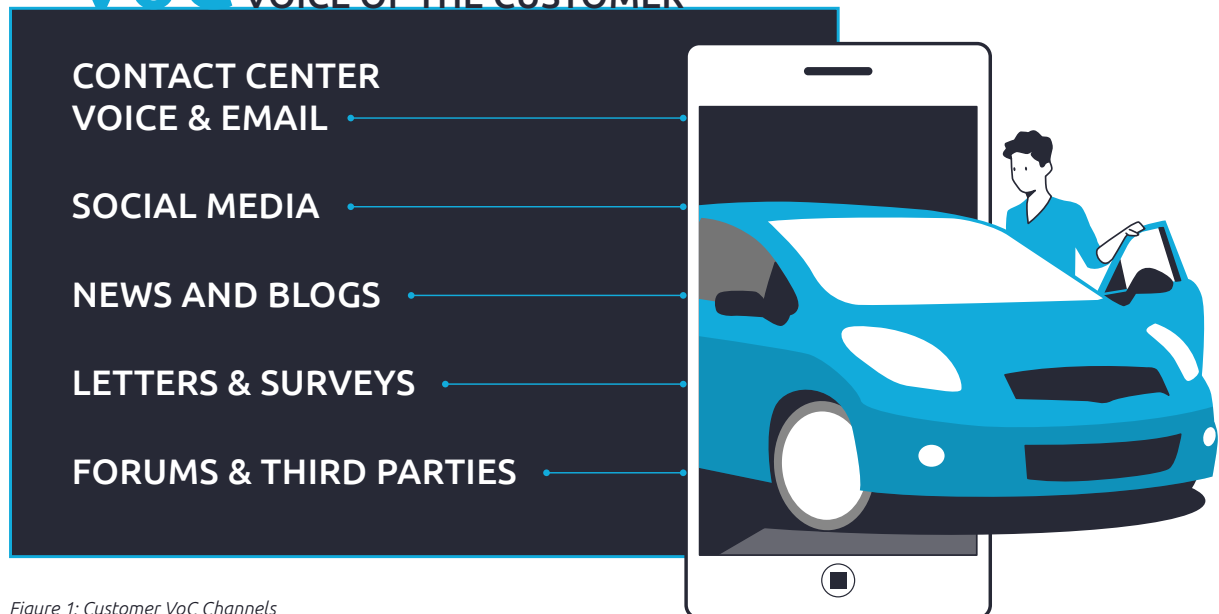


Figure 1: Customer VoC Channels

To gain insight into the customer experience, it is vital to aggregate all of these sources to perform correlations and other type analytics.



# 2

## WHAT IS BUSINESS INTELLIGENCE (BI) OF THE VOICE OF THE CUSTOMER (VoC) IN THE AUTOMOTIVE INDUSTRY?

Business Intelligence (BI) of the Voice of the Customer (VoC) in the automotive industry refers to the process of collecting, analyzing, and leveraging customer feedback data to gain insights and make informed business decisions. In other words, BI-VoC is the integration of VoC data into a company's overall business intelligence strategy.

In the automotive industry, BI-VoC can provide valuable insights into the customer experience, which can help manufacturers to improve their products and services. By analyzing customer feedback, manufacturers can identify areas for improvement, such as product design, quality, and customer service.

BI-VoC also helps manufacturers to monitor their performance and track their progress over time. By collecting and analyzing data on customer satisfaction and loyalty, manufacturers can gain insights into the effectiveness of their strategies and make informed decisions about how to improve their products and services.

PROACTIVE LISTENING (Pull)	FACTS COLLECTION FEEDBACKS FORMS POLLING ANALYTICS	OPINION GATHERING SURVEYS GROUP INTERVIEWS
REACTIVE LISTENING (Passive)	DATA MINING USAGE DATA PROCESS DATA FAULT LOGS	VOICE OF THE CUSTOMER SOCIAL MEDIA WEB SITES CLAIMS
	QUANTITATIVE EVIDENCE (Facts)	QUALITATIVE EVIDENCE (Opinions)

Figure 2. VoC Data Collection

### BI-VoC VALUE TO CUSTOMER WOULD BE:

- Mines customer-agent interactions:
  - Speech
  - Text
  - Data
- Uncovers valuable customer insights
- Improves customer satisfaction
- Enhances targeted marketing programs
- Increases operational efficiencies
- Enables compliance management

Furthermore, it can help manufacturers to stay competitive in the market. By identifying trends and emerging customer needs, manufacturers can respond quickly to changes in the market and develop products and services that meet those needs.

# 3

## WHAT WOULD BE AN EXAMPLE OF A DIGITAL USER EXPERIENCE JOURNEY WITHIN A DEALERSHIP SETTING?

Suppose that you are employed by a car dealership that utilizes Salesforce to handle customer data and service transactions. Your objective is to design a dashboard that displays customers' opinions regarding brands and services. This will enable you to derive the reputation of the dealership's products and services and identify customers' preferences and criticisms. By conducting an augmented analysis of this information, you can develop an actionable plan to enhance the customer experience.

To achieve this objective, it is essential to replicate a considerable amount of relevant structured and unstructured data from your CRM solution to a data warehouse. Once the data has been duplicated or linked virtually to your data warehouse, you should employ a visualization tool to produce a dashboard that presents customer perception classified by brand and product category. This dashboard should then be displayed to the user, enabling them to recognize actionable insights.

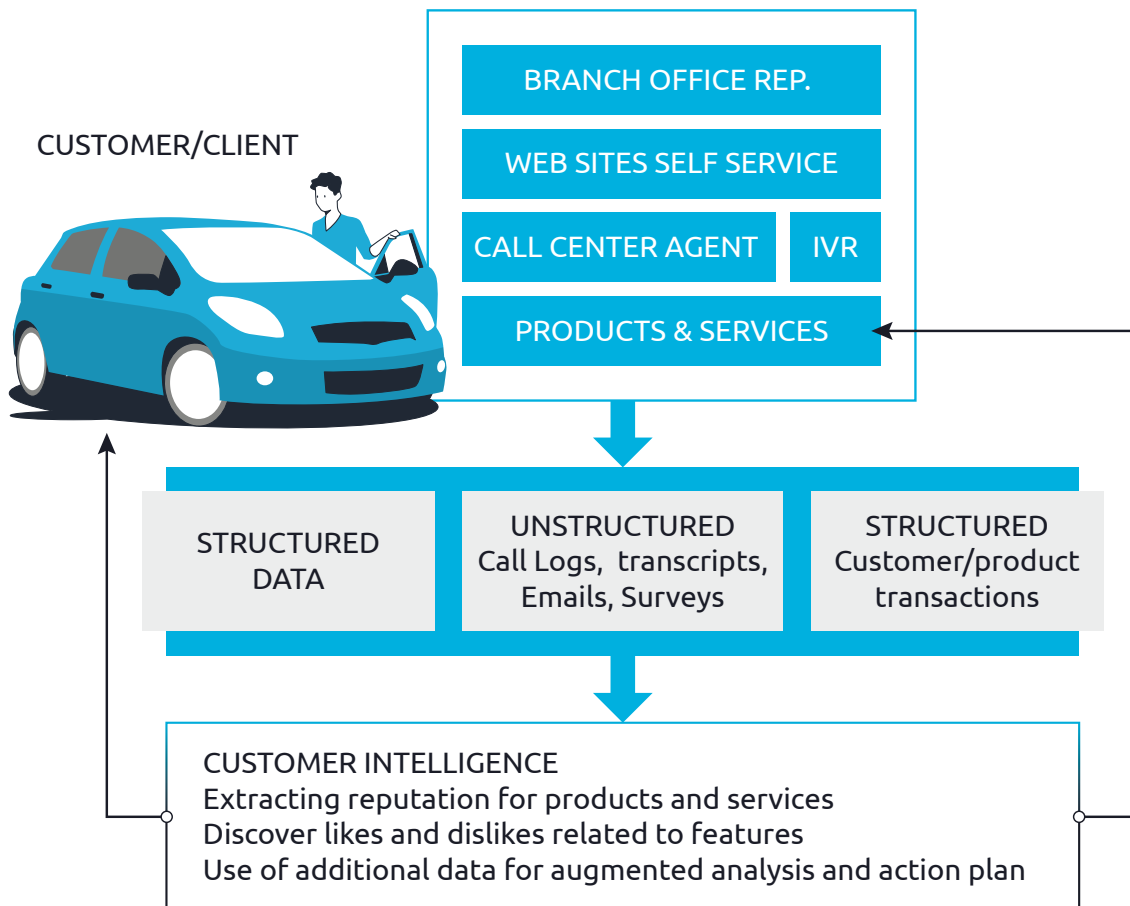


Figure 3. Insight into the customer experience



Through the integration of this data, valuable insights can be obtained regarding the performance of your automotive sales and services, enabling data-driven decision-making to enhance your business operations.

Data-driven decision-making is a process of making informed business decisions by analyzing and interpreting data collected from various sources. It involves using statistical and quantitative analysis to identify patterns, trends, and insights in the data, which can then be used to inform and guide business decisions.

By relying on data rather than intuition or assumptions, data-driven decision-making enables businesses to make more informed, accurate, and objective decisions that can ultimately lead to improved performance and better outcomes.





# 4

## WHAT TYPE OF ARCHITECTURAL LANDSCAPE COULD ENCOMPASS IT?

The architecture consists of several components, including Salesforce Service Cloud for collecting feedback data, CRM Analytics for advanced analytics, Snowflake for scalable data storage, Tableau for creating interactive visualizations and dashboards, and RServer for advanced analytics such as sentiment analysis and predictive modeling.

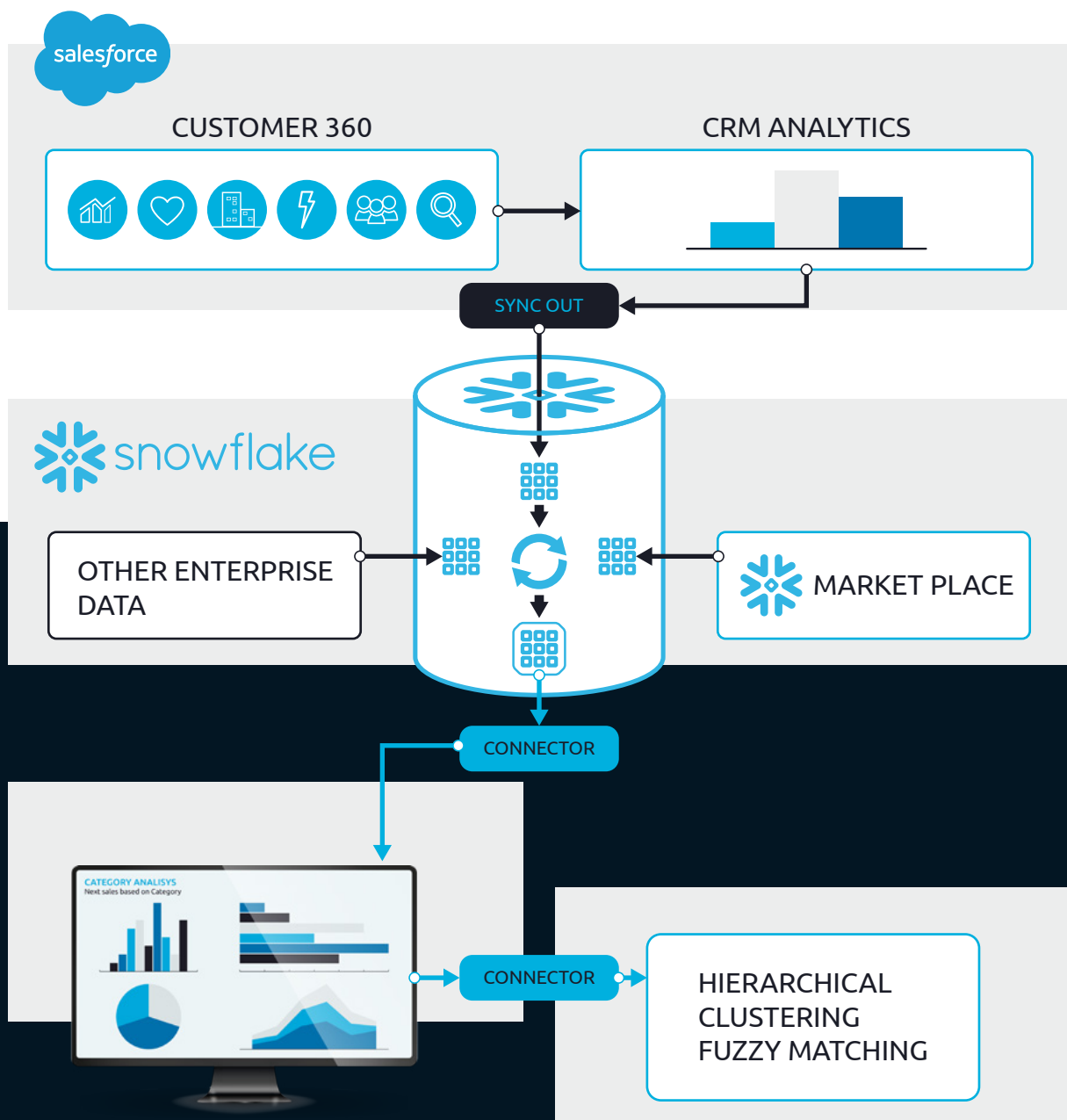


Figure 4. The integrated architecture Landscape

This integrated architecture enables organizations to collect, store, analyze, and visualize customer feedback data in a scalable and flexible manner, while also gaining actionable insights that can help improve products, services, and overall customer experience.

The architecture can be broken down into several components:

### 1 SALESFORCE SERVICE CLOUD

This is the primary platform for collecting customer feedback data. Service Cloud allows organizations to collect feedback through various channels such as email, chat, phone, and social media. It also allows for automated workflows and case management, making it easy to manage customer feedback and respond to customer inquiries.

### 2 CRM ANALYTICS

This platform provides advanced analytics capabilities to analyze customer feedback data. It includes tools for data visualization, dashboards, and reporting, allowing organizations to gain insights into customer sentiment, behavior, and preferences.

### 3 SNOWFLAKE

This cloud-based data warehouse platform provides scalable storage for customer feedback data. Snowflake enables organizations to store large amounts of data in a cost-effective manner, while also providing advanced features such as automatic scaling and data sharing.

### 4 TABLEAU

This platform allows organizations to create interactive visualizations and dashboards to analyze customer feedback data. It provides a user-friendly interface for exploring data and gaining insights, while also allowing for easy sharing and collaboration.

### 5 RSERVER

R is a programming language commonly used for statistical analysis and data visualization. By using R scripts in this architecture, organizations can perform advanced analytics on customer feedback data, such as sentiment analysis and predictive modeling.

This integrated architecture involves the processing of Large data Volumes, both structured and unstructured. It can help implement specific actions to identify all company's sources of voice, extract them, analyze them, and channel high-value insights to requisite departments

Additionally, it can help the preparation of action plans, such as, elimination of pain points or generation of wow effect, based on conclusions.

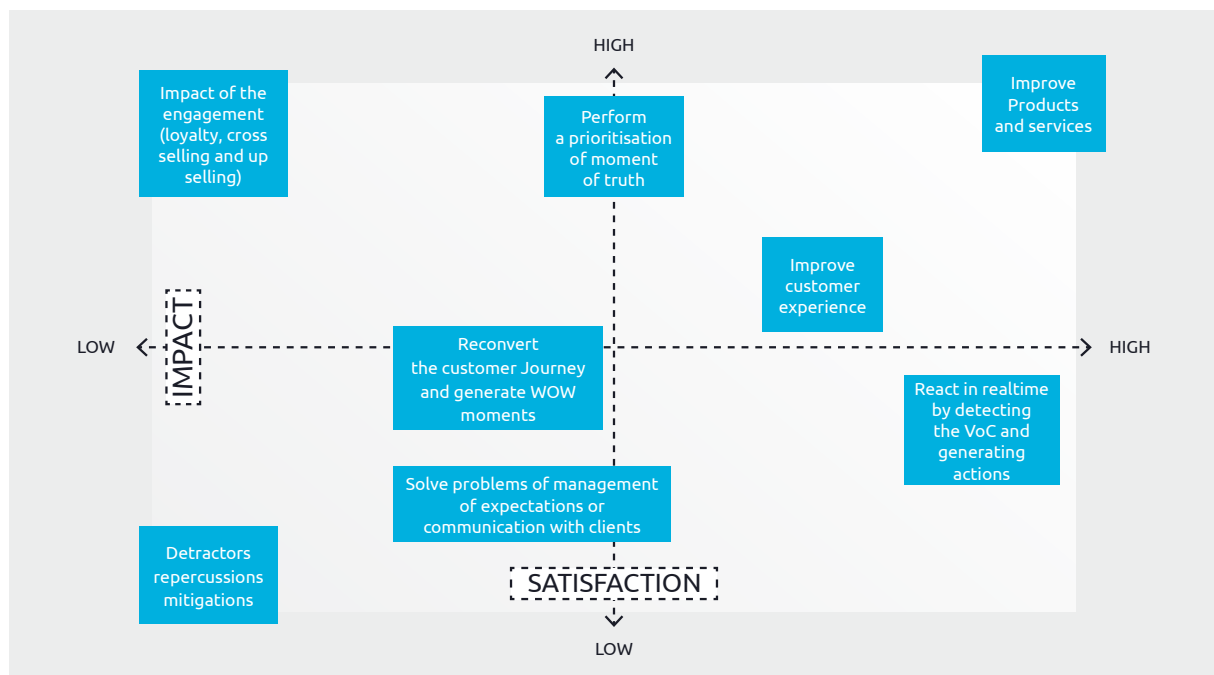


Figure 5. Examples of action plans and measures due to VoC analysis

# 5

## ACHIEVING THE VoC

In the upcoming section, we will take a closer look at three use cases that are related to this integrated architecture. These use cases include:

- 5.1** Hierarchical clustering for Voice of the Customer (VoC),
- 5.2** Similar cases detection,
- 5.3** On Demand Account (ODA).





## 5.1 HIERARCHICAL CLUSTERING FOR VoC

Hierarchical clustering can be used to group similar automotive customer claims together based on their similarities or dissimilarities. By doing so, it can help identify patterns and trends in the data that may not be immediately apparent through manual inspection.

An automotive company may have a large database of customer claims related to various issues, such as engine problems, brake issues, and electrical failures. By using hierarchical clustering, the company can group similar claims together based on factors such as the nature of the problem, the type of vehicle, and the geographic location of the claim.

This can help the company identify common issues across different types of vehicles or geographic regions, allowing them to take proactive measures to address these issues. For example, if the company finds that a particular type of vehicle is more prone to engine problems, they can take steps to improve the design or quality of that component.

Hierarchical clustering can also be used to identify anomalies in the data. For example, if a particular claim does not fit into any of the established clusters, it may indicate a unique or previously unknown issue that requires further investigation.

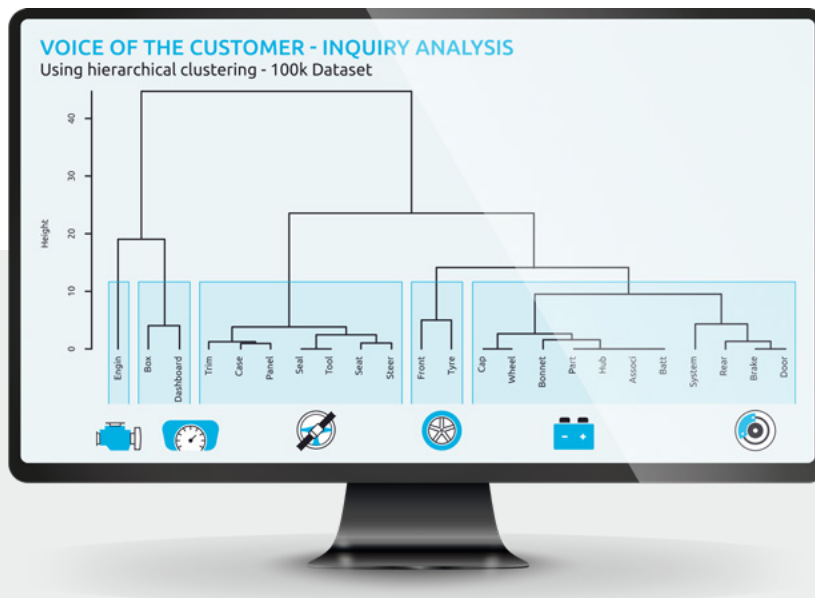


Figure 6. Hierarchical clustering can then be visualized using a dendrogram

The output of hierarchical clustering can then be visualized using a dendrogram, which shows the hierarchical relationships between the different groups of customer inquiries.

The dendrogram can be used to identify clusters of customer inquiries that are related to each other, allowing businesses to gain a deeper understanding of the needs and preferences of their customers. By analyzing the characteristics of the customer inquiries in each cluster, businesses can identify trends and patterns that can help inform product development, marketing strategies, and customer service initiatives.

For example, if a business sees a cluster of customer inquiries related to a particular product feature, they may decide to invest more resources in developing and promoting that feature. Similarly, if a business sees a cluster of customer inquiries related to a particular customer service issue, they may decide to focus on improving their customer service processes and training their customer service representatives.

Overall, hierarchical clustering and visualization can be powerful tools for analyzing and understanding VoC inquiries, enabling businesses to better meet the needs and expectations of their customers.

## 5.2 SIMILAR CASES DETECTION

Fuzzy logic can be used to detect similar cases of customer claims by comparing the degree of similarity or dissimilarity between different claims based on various factors. These factors can include the type of vehicle, the nature of the problem, the geographic location of the claim, and the age of the vehicle, among others.

An automotive company that has a large database of customer claims related to engine problems, they can use fuzzy logic to identify similar cases based on the characteristics of the claims. By analyzing the data related to these claims, the company can identify the key features that are common among similar cases, such as the type of vehicle, the nature of the problem, and the location of the customer.

Fuzzy logic can then be used to calculate the degree of similarity between different claims based on these features, taking into account the uncertainty and imprecision in the data. The result is a measure of the degree of similarity between different claims, which can be used to group similar claims together and identify patterns or trends in the data.



Figure 7. On demand similar cases detection pattern

By using fuzzy logic to detect similar cases of automotive customer claims, companies can gain valuable insights into the underlying causes of problems and take proactive steps to improve product quality and customer satisfaction.

The benefits of detecting similar cases in the automotive industry are numerous. By identifying patterns in customer claims and issues, companies can improve their products and services, resulting in higher customer satisfaction and loyalty.

This can also lead to cost savings for the company by reducing the number of claims and warranty repairs, and improving product quality. Additionally, detecting similar cases can aid in the identification of potential safety issues and allow companies to address them quickly and effectively.

## 5.3 ON DEMAND ACCOUNT (ODA)

An On Demand Account (ODA) is a type of customer account that is created in response to a specific customer request or need. In the automotive industry, ODAs can be used to provide customized services and solutions to customers based on their specific needs and preferences.

Using fuzzy logic algorithms, automotive companies can analyze customer data and identify potential leads for ODA accounts based on the degree of similarity between their needs and preferences and the services and solutions that the company offers. This can involve analyzing data such as customer purchase history, service requests, and online behavior to identify patterns and trends that indicate specific needs or preferences.

Once potential leads for ODA accounts have been identified, automotive companies can approach these customers in a targeted and personalized way that addresses their specific needs and interests. This can involve providing customized service offerings, personalized recommendations, and proactive support throughout the customer journey.

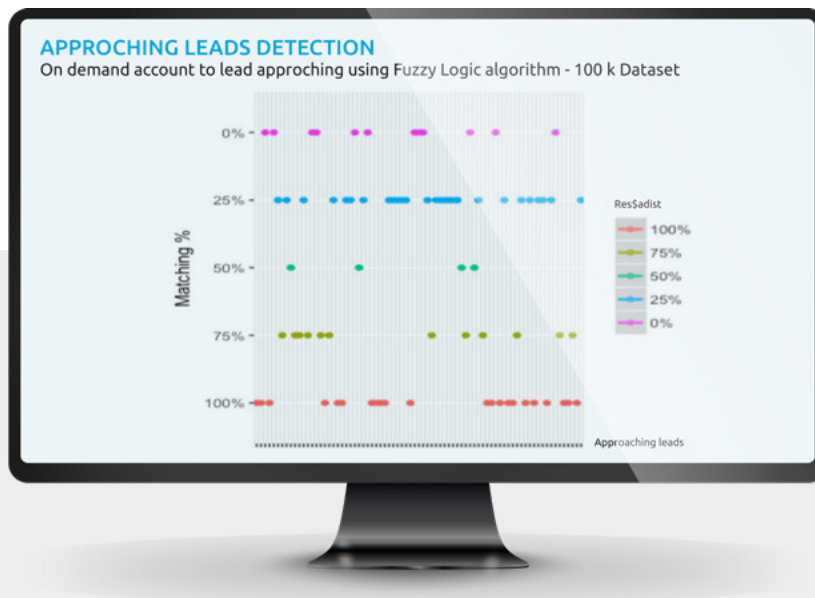


Figure 8. Potential leads for ODA accounts detection

By leveraging fuzzy logic algorithms to identify potential leads for ODA accounts, automotive companies can provide a more tailored and personalized customer experience, which can help to build stronger customer relationships and drive customer loyalty and retention.

This approach can also help automotive companies to differentiate themselves in a competitive market by providing unique and innovative solutions that meet the specific needs and preferences of their customers.



## 5.4 DATA VISUALISATION USING TABLEAU

All the insights gathered through the ML process mentioned above are presented by means of easy-to-read metrics combined in customizable dashboards and reports under Tableau platform. Clients can decide which information to foreground, and what to leave off as irrelevant or inconclusive.

## 5.5 AFTER INSIGHT: ACTIONS

Once the VoC data processing is complete, you'll want to review the user sentiments expressed and put together strategies for improvement. This process, driven by a data analysis API, will enable you to remain ahead of your competitors, align with customer opinion, and protect your public perception.

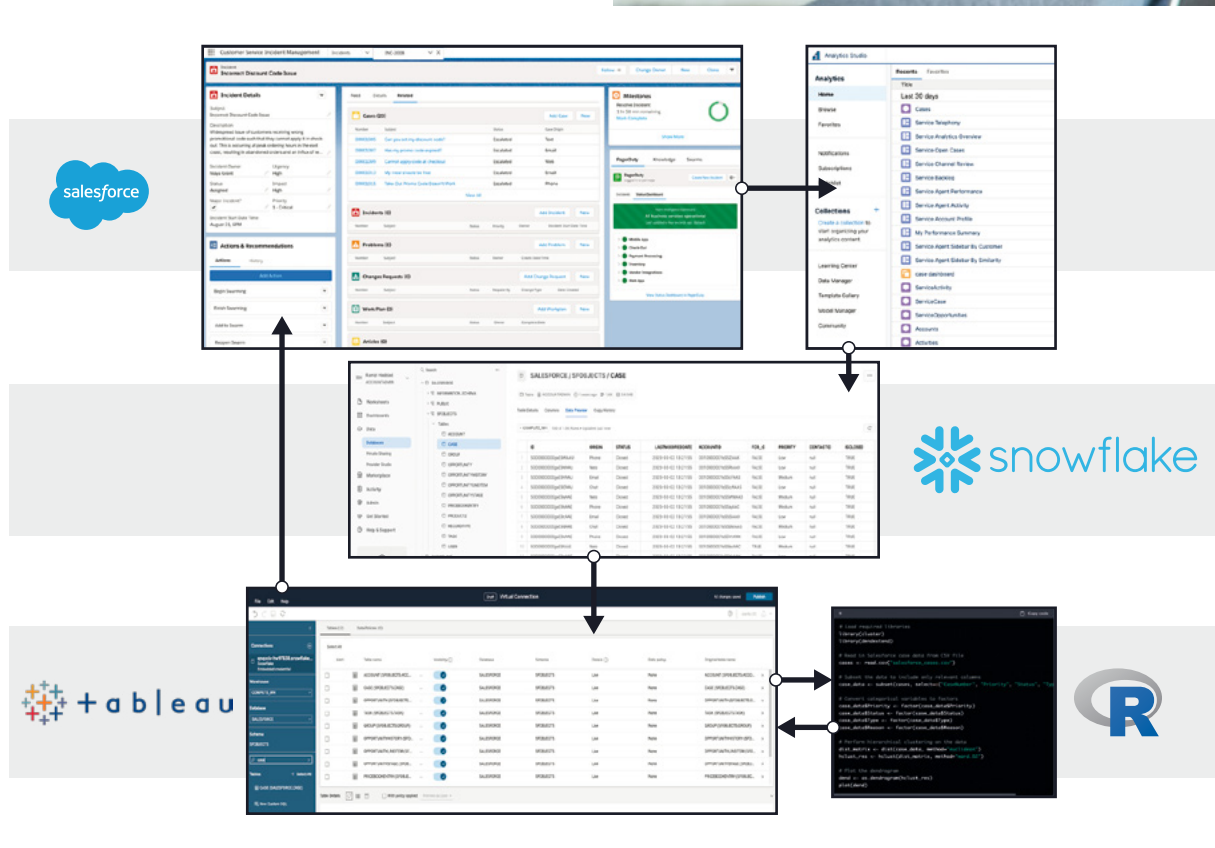


Figure 9. End to End Data Driven Visualization



## CONCLUSION

This paper discusses the importance of understanding and improving customer experience for organizations to develop loyalty and retention. Customer feedback plays a crucial role in this process, known as the voice of the customer (VoC), where customer feedback is collected, shared within the organization, and interpreted to enhance customer experience and retention.

The VoC is highly relevant in the automotive industry and can result in improved competitiveness, increased customer loyalty, and enhanced brand reputation. Investing in the VoC and continuously improving products and services based on customer feedback can lead to a higher return on investment and a competitive advantage.

The Salesforce stack combined with Snowflake platform could be used for managing VoC programs in the automotive industry by providing a centralized platform for feedback collection, tracking, reporting and after insight actionability.



## ABOUT THE AUTHOR



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Ramzi HADDAD is an APPs DCX Enterprise Architect for Capgemini's Group. With a wealth of experience spanning over 15 years in the realm of Digital Customer Experience (DCX) transformation, he has been at the forefront of assisting our clients in adopting novel technologies to enhance business value and shift towards customer-centricity.

Ramzi has contributed significantly to multiple digital transformations within the automotive sector, working with some of the industry's largest and most complex customers. Although he utilizes various programming languages for data analysis, including R and Python, his primary focus and passion lies with R, which he actively promotes.

## APPENDIX

Voice of the Customer (VoC), taking into account feedback as a whole, CapGemini Publish date: May 29, 2018

<https://www.capgemini.com/ar-es/2018/05/voice-of-the-customer-voc-taking-into-account-feedback-as-a-whole/>

Hierarchical Clustering in R

<https://www.r-bloggers.com/2016/01/hierarchical-clustering-in-r-2/>

Take a Tour of the Service Console for Automotive

[https://help.salesforce.com/s/articleView?id=sf.auto\\_service\\_console\\_features.htm&type=5](https://help.salesforce.com/s/articleView?id=sf.auto_service_console_features.htm&type=5)

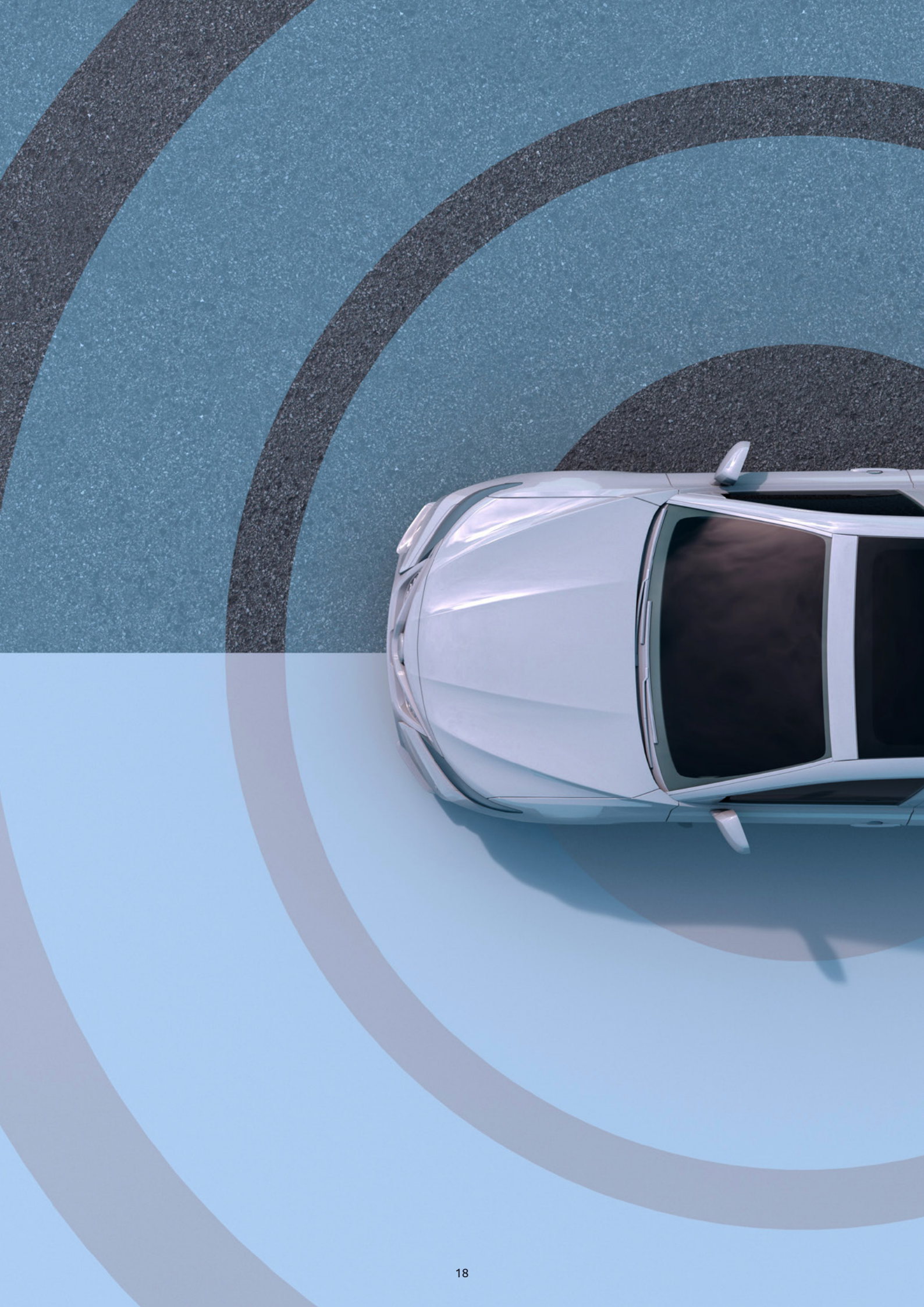
Tableau R integration

<https://www.tableau.com/developer/tools/r-integration>

Now in Tableau 9.3, you can connect to your Snowflake Elastic Data Warehouse and pick which virtual warehouse you want to use

<https://www.tableau.com/blog/introducing-snowflake-connector-tableau-93-52456>







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