

# Decision Trees

for Self-Serve Chatbots



# Problem Statement(s)

- Agents spend a lot of time learning the workbench and then leave early due to high turnover. Time, energy, and money are wasted
- High volume of tickets versus fewer Agents
- Decision tree creation and maintenance is too complex and technical
- No consistency in the quality of ticket resolution for the same issues

# Opportunity

- **Self-Serve Automation:** Increase self-serve capabilities so that agents can become more efficient and get time to handle more complex tickets and thereby increasing overall throughput.
- **Improve Agent UX:** Make the Agent workbench more intuitive with enhanced UX to decrease the time spent learning the Workbench.
- **Easy Decision Tree creation:** Currently, the admin is a technical person creating complex decision trees, thereby it takes a lot of time to edit and test the decision tree. The simpler decision trees can be handled by a non-technical person as well. This reduces maintenance costs as well as time to make edits to the intents/workflows.
- **Customer Satisfaction:** CSAT is not defined today. CSAT needs to be defined to be able to quantify the experience of the end customer.



# Alex Payne

Role: Customer Service Agent  
Age: 21  
Location: SF, California  
Education: Completed High School  
Experience: 14 months

*"Never be so busy making a living that you forget to make a life"*



## Interests

- Traveling
- Hiking
- Tik Tok

## Motivations

- Wants to move up the career ladder
- Enjoys appreciation of customers
- Always trying to find efficient ways to increase throughput

## Daily Task(s)

- Respond to customer tickets
- Handle tickets within SLA timelines
- Provide quality resolution
- Provide awesome customer experience

## Pain Points

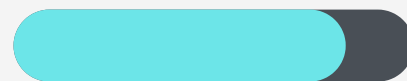
- Too much work
- Work is redundant
- Not able to respond to customers on time
- Not able to find the content /information fast
- Sometimes customers argue when there is no need
- Not clarity on customer feedback

## Technology

Internet



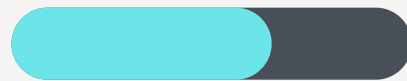
Mobile



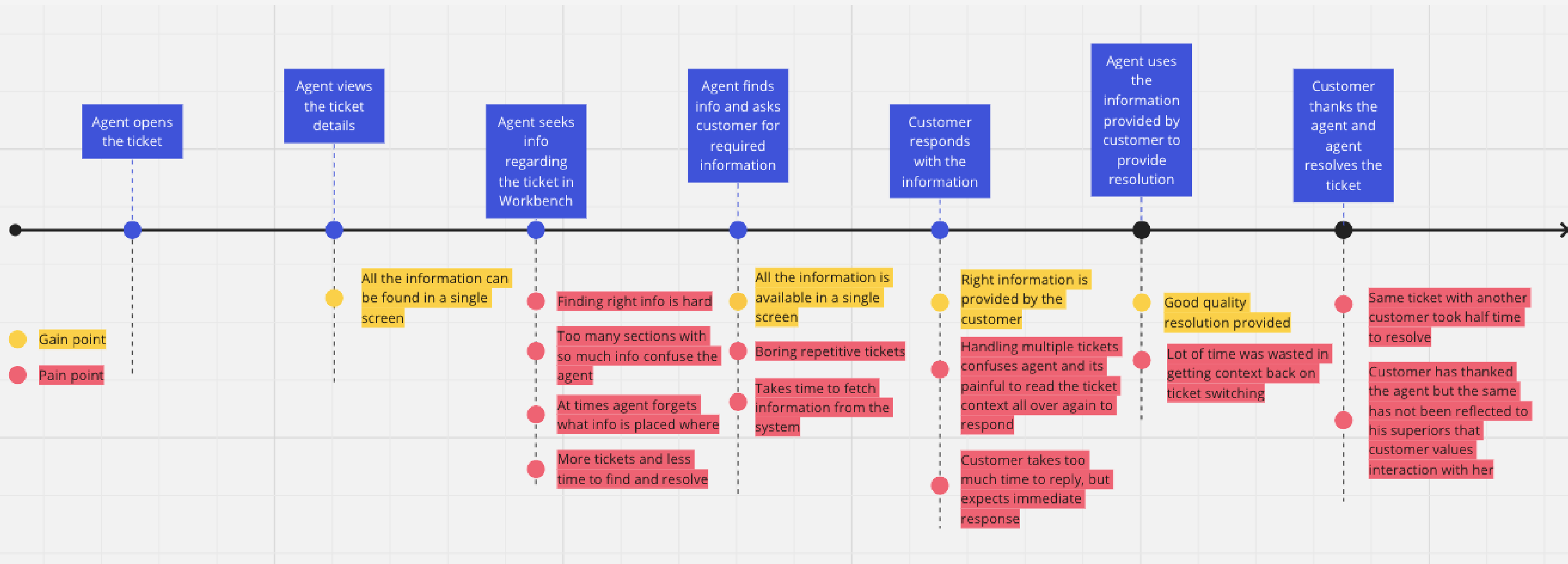
Social Media



Online Shopping



# Case Journey Map (Agent)





# Josh Smith

Role: Admin

Age: 34

Location: SF, California

Education: Graduate (Engineer)

Experience: 5+ years

*"Technology is best when it brings people together."*

## Technology

Internet

Mobile

Social Media

Online Shopping

### Interests

- Reading
- Car enthusiast
- Technology
- Metaverse
- Crypto Trader

### Motivations

- Always looking for ways to automate his work
- Focused on getting maximum benefits for his team
- Takes delight in customer appreciation when complex workflows are deployed.

### Daily Task(s)

- Create and manage all decision tree workflows
- Create and Manage intents/entities within the system
- User management
- Dashboards and Productivity
- System configurations and integrations

### Pain Points

- Hard to create complex workflows
- Its harder to test and rectify issues because of the complexity of decision trees
- Change requests take a lot of his bandwidth as the entire flow is too complex
- Overburdened with a lot of responsibility

Proposed Persona



# Ray Jones

Role: Admin (Non Technical)

Age: 28

Location: SF, California

Education: Graduate (History)

Experience: 3+ years

*"Your limit is only your mind."*

## Technology

Internet

Mobile

Social Media

Online Shopping

## Interests

- Movies
- Puzzles
- Technology
- Current Affairs
- American History

## Motivations

- Open to new challenges and opportunities
- Loves to learn new things by stepping out of his comfort zone
- Gives keen attention to details

## Benefits

- Simple intents, entities, and decision tree workflows can be created and managed by this user
- Faster deployment of changes within the system
- Existing Admin can focus on more technical task management

# Guided Decision Trees



## Self Serve Workflows

Partly or fully handle the cases based on predefined rules for specific use cases.

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## Intuitive Agent workbench

Help agents by recommending decision trees in their interactions when required so that more cases can be handled automatically.

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## Handles multiple use cases like:

- Customer Profiling
- Troubleshooting Scenarios
- Product Return requests
- Quote Recommendations
- and many more

# Solution Advantages



**Consistent Quality of Resolution:** The same interaction for a particular kind of case will remove the bias from the system. Standardized replies will help maintain the quality of interactions.

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*KPI - Consistent CSAT for tickets handled completely by decision trees*

**Improved adoption for Decision Trees:** With the new improved UX, Agents should now be able to locate and use decision trees easily and more frequently.

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*KPI - Count of cases using decision trees (Fully/partial)  
Guardrail KPI - Total count of cases handled increases per day/week/month*

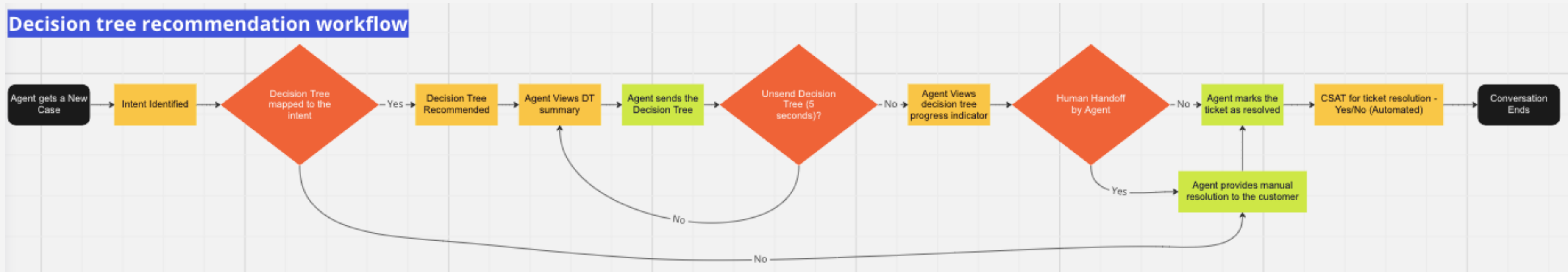
**Agents handle complex cases** - Agents can now use decision trees for partial or full workflows.

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*KPI - Count of Decision tree sent from Agent workbench*

# User Story

"As an agent i want to send recommended decision tree to the end customer so that i can handle more tickets in same timeframe."



[Flowchart Link](#)

[Prototype Link](#)

Wireframes - Agent Workbench

Decision Tree

# Prototype (Video)

[Prototype Video Link](#)  
(Please download the video for best viewing experience)

The screenshot displays the ServiceNow user interface. On the left, there is a navigation sidebar with 'now' at the top and a status indicator 'Available'. The main chat window shows a message from 'An agent' asking for an insurance quote. Below the message is a link for a 'Recommended Decision Tree: Customer Profiling'. The right-hand side of the screen is split into two panels. The top panel, titled 'Details', shows the 'Interaction' details for task IMS0000005, including the assigned user 'Luke Wilson' and the state 'Work in Progress'. Below this is a 'Compose' section for adding work notes and an 'Attachments' section with a 'Browse' button. The bottom panel, titled 'Activity', shows a list of recent events, such as 'Assigned to Luke Wilson was Empty' and 'State Work in Progress was New'.

Wait time			
Days	Hours	Minutes	Seconds
0	0	0	0

Duration			
Days	Hours	Minutes	Seconds
0	0	0	0

Status

- Available

Your inbox is empty.

No work items are assigned to you so they will appear in this panel.

Active

3m ago

Can you please let me know the insurance quote for my car?

[Recommended Decision Tree: Customer Profiling](#)

Details Decision Trees

Create Incident

Details Related Tasks User's Interactions User's Tasks

### Interaction

Number	IMS0000005	Queried for	Guest
Type	Messaging	Assigned to	Luke Wilson
State	Work in Progress	Wait time	Days: 0, Hours: 0, Minutes: 0, Seconds: 2
		Duration	Days: 0, Hours: 0, Minutes: 0, Seconds: 0

Short description

Work notes

### Compose

Work notes (Private)

Type your Work notes (Private) here

Post Work notes (Private)

### Activity

- LW Luke Wilson**  
2020-06-09 15:44:39 • Read changes  
Assigned to Luke Wilson was Empty  
State Work in Progress was New
- G Guest**  
2020-06-09 15:44:37 • Read changes  
Assigned to Empty was VirtualAgent  
State New was Work-in-Progress
- G Guest**  
2020-06-09 15:44:37 • Read changes  
Assigned to Virtual Agent was Empty  
Opened by Guest was Empty  
State Work in Progress was Empty

### Attachments

No Attachments Available

Browse for a file to add it as an attachment.

Browse

**Inbox**

Status: Available +

Your inbox is empty. As work items are assigned to you they will appear in this panel.

Public Chat | Private Chat

Message visible to everyone

IMS0000004 | IMS0000005

Active

3m ago

Can you please let me know the insurance quote for my car?

[Recommended Decision Tree: Customer Profiling](#)

Details | **Decision Trees**

Search for decision tree here

Recommended Trees

Customer Profiling:  
Type: Prompt  
Input Variables: Name, Age

Send

Compose

Work notes (Private)

Type your Work notes (Private) here

Post Work notes (Private)

Activity

- Luke Wilson**  
2020-06-09 15:44:39 • Final changes  
Assigned to Luke Wilson was Empty  
State Work in Progress was New
- Guest**  
2020-06-09 15:44:37 • Final changes  
Assigned to Empty was Virtual Agent  
State New was Work in Progress
- Guest**  
2020-06-09 15:44:37 • Final changes  
Assigned to Virtual Agent was Empty  
Opened by Guest was Empty  
State Work in Progress was Empty

Attachments

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Browse

Inbox

IMS0000004

IMS0000005

+

Status  
• Available +

Active

3m ago

Can you please let me know the insurance quote for my car?

[Recommended Decision Tree: Customer Profiling](#)

Details Decision Trees

Search for decision tree here

Create Incident

Recommended Trees

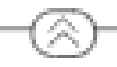
Customer Profiling: Prompt

Customer Name (Can you please let me know your name?)

Age (Can you please let me know your age?)

Gender (Please specify your gender? Male/Female/Other)

Send Clear



### Compose

Work notes (Private)  
Type your Work notes (Private) here

Post Work notes (Private)

### Activity

**LW Luke Wilson**  
2020-06-09 15:44:29 • Filed changes

Assigned to **Luke Wilson** was Empty  
State **Work in Progress** was New

**G Guest**  
2020-06-09 15:44:37 • Filed changes

Assigned to **Empty** was Virtual Agent  
State **New** was Work in Progress

**G Guest**  
2020-06-09 15:44:37 • Filed changes

Assigned to **Virtual Agent** was Empty  
Opened by **Guest** was Empty  
State **Work in Progress** was Empty

### Attachments



No Attachments Available

Browse for a file to add it as an attachment.

Browse

Public Chat Private Chat

Message visible to everyone



**Inbox**

Status

- Available +

**Your inbox is empty.**  
As work items are assigned to you they will appear in this panel.

Public Chat Private Chat

Message visible to everyone

IMS0000004 IMS0000005 +

Active

3m ago

Can you please let me know the insurance quote for my car?

[Recommended Decision Tree: Customer Profiling](#)

Details Decision Trees

Search for decision tree here

Recommended Trees

Customer Profiling: Prompt

- Customer Name (Can you please let me know your name?)
- Age (Can you please let me know your age?)
- Gender (Please specify your gender? Male/Female/Other)

Unsend (5s) Clear

Create Incident

**Compose**

Work notes (Private)

Type your Work notes (Private) here

Post Work notes (Private)

**Activity**

- LW Luke Wilson**  
2020-06-09 15:44:39 • Field changes  
Assigned to Luke Wilson was Empty  
State Work in Progress was New
- G Guest**  
2020-06-09 15:44:37 • Field changes  
Assigned to Empty was Virtual Agent  
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2020-06-09 15:44:37 • Field changes  
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Browse

**Inbox**

Status: Available

Your inbox is empty. As work items are assigned to you they will appear in this panel.

Public Chat | Private Chat

Message visible to everyone

Active

3m ago

Can you please let me know the insurance quote for my car?

[Recommended Decision Tree: Customer Profiling](#)

Details | **Decision Trees**

Search for decision tree here

Create Incident

Recommended Trees

Customer Profiling: Prompt

- Customer Name (Can you please let me know your name?)
- Age (Can you please let me know your age?)
- Gender (Please specify your gender? Male/Female/Other)

Unsend (0s) | Clear

**Compose**

Work notes (Private)

Type your Work notes (Private) here

Post Work notes (Private)

**Activity**

- Luke Wilson**  
2020-06-09 15:44:39 • Field changes  
Assigned to Luke Wilson was Empty  
State Work in Progress was New
- Guest**  
2020-06-09 15:44:37 • Field changes  
Assigned to Empty was Virtual Agent  
State New was Work-in-Progress
- Guest**  
2020-06-09 15:44:37 • Field changes  
Assigned to Virtual Agent was Empty  
Opened by Guest was Empty  
State Work in Progress was Empty

**Attachments**

No Attachments Available

Browse for a file to add it as an attachment.

Browse

**Inbox**

Status: Available +

Your inbox is empty.  
As work items are assigned to you they will appear in this panel.

Public Chat | Private Chat

Message visible to everyone

IMS0000004 | IMS0000005

Can you please let me know the insurance quote for my car?

[Recommended Decision Tree: Customer Profiling](#)

Can you please let me know your name?

**Details** | **Decision Trees**

Search for decision tree here

Recommended Trees

Customer Profiling  
Type: Text Prompt  
Input Variables: Name, Age  
Progress: (0 / 2) **Handoff**

**Compose**

Work notes (Private)

Type your Work notes (Private) here

**Post Work notes (Private)**

**Activity**

- Luke Wilson**  
2020-06-09 15:44:29 • Field changes  
Assigned to: Luke Wilson was Empty  
State: Work in Progress was New
- Guest**  
2020-06-09 15:44:27 • Field changes  
Assigned to: Empty was Virtual Agent  
State: New was Work in Progress
- Guest**  
2020-06-09 15:44:27 • Field changes  
Assigned to: Virtual Agent was Empty  
Opened by: Guest was Empty  
State: Work in Progress was Empty

**Attachments**

No Attachments Available

Browse for a file to add it as an attachment.

**Browse**

Inbox

IMS0000004

IMS0000005

Status

- Available +

Your inbox is empty.  
As work items are assigned to you they will appear in this panel.

Can you please let me know the insurance quote for my car?

[Recommended Decision Tree: Customer Profiling](#)

Can you please let me know your name?

John Doe

Thanks.

Can you please specify your age?

Details Decision Trees

Search for decision tree here

Recommended Trees

Customer Profiling:  
Type: Text Prompt  
Input Variables: Name, Age

(1 / 2)

Handoff

Create Incident

Public Chat Private Chat

Message visible to everyone

### Compose

Work notes (Private)

Type your Work notes (Private) here

Post Work notes (Private)

### Activity

- LW Luke Wilson**  
2020-06-09 15:44:29 • Field changes  
Assigned to: Luke Wilson was Empty  
State: Work in Progress was New
- G Guest**  
2020-06-09 15:44:37 • Field changes  
Assigned to: Empty was Virtual Agent  
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2020-06-09 15:44:37 • Field changes  
Assigned to: Virtual Agent was Empty  
Opened by: Guest was Empty  
State: Work in Progress was Empty

### Attachments

No Attachments Available

Browse for a file to add it as an attachment.

Browse

**Inbox**

Status  
● Available

Your inbox is empty.  
As work items are assigned to you they will appear in this panel.

Public Chat Private Chat

Message visible to everyone

IMS0000004 IMS0000005

Can you please let me know the insurance quote for my car?

**Recommended Decision Tree: Customer Profiling**

Can you please let me know your name?

John Doe

Thanks.

Can you please specify your age?

38 yrs

Got it.

Following quotes are recommended for you. Please click on the quote to view details.

National Insurance  
View Details

**Details** **Decision Trees**

Search for decision tree here

Recommended Trees

Customer Profiling:  
Type: Text Prompt  
Input Variables: Name, Age  
● ● (2 / 2) **Handoff**

**Compose**

Work notes (Private)  
Type your Work notes (Private) here  
**Post Work notes (Private)**

**Activity**

- LW Luke Wilson**  
2020-06-08 15:46:28 • Field changes  
Assigned to Luke Wilson was Empty  
State Work in Progress was New
- G Guest**  
2020-06-08 15:46:27 • Field changes  
Assigned to Empty was VirtualAgent  
State New was Work in Progress
- G Guest**  
2020-06-08 15:46:27 • Field changes  
Assigned to Virtual Agent was Empty  
Opened by Guest was Empty  
State Work in Progress was Empty

**Attachments**

No Attachments Available  
Browse for a file to add it as an attachment.  
**Browse**

Wireframes - Agent Workbench

Decision Tree - Forms

Inbox

IMS0000004 IMS0000005 +

Status

Available

Your inbox is empty.

No work items are assigned to you they will appear in this panel.

Active

3m ago

Can you please let me know the insurance quote for my car?

Recommended Decision Tree: Customer Profiling

Public Chat Private Chat

Message visible to everyone

Details Decision Trees

Search for decision tree here

Create Incident

Recommended Trees

Customer Profiling: Form

Customer Name

Age

Gender

Send Clear

Compose

Work notes (Private)

Type your Work notes (Private) here

Post Work notes (Private)

- Activity
- Luke Wilson**  
2020-06-09 10:44:30 • Field changes  
Assigned to Luke Wilson was Empty  
State Work in Progress was New
  - Guest**  
2020-06-09 10:44:31 • Field changes  
Assigned to Empty was VirtualAgent  
State New was Work-in-Progress
  - Guest**  
2020-06-09 10:44:31 • Field changes  
Assigned to Virtual Agent was Empty  
Opened by Guest was Empty  
State Work in Progress was Empty

Attachments

No Attachments Available

Browse for a file to add it as an attachment.

Browse

# User Story

*"As an agent i want to send recommended decision tree to the end customer so that i can handle more tickets in same timeframe."*

Once the chat is picked up by or transferred to the agent, if the intent has a decision tree mapped to it, the decision tree is recommended for that particular interaction. The decision tree is recommended in the chat/interaction box.

The summary of the recommended tree is shown in the Decision Tree section. The agent can click on expand icon to expand the decision tree details. The following details can be seen in the expanded view.

- Type of decision tree input (Text prompts or Input form) (Default selection - Prompt) (Note: Since prompts work for both voice and chat, forms might have a limitation on chat only. Also, not all channels might support form inputs (eg: WhatsApp etc..))
- Variables/Entities to be asked in the decision tree
- Option to send the decision tree
- A progress indicator is also shown which gives the progress of the decision tree if the agent returns to it at some point.
- Agent can manually take control of the conversation at any time by clicking the handoff button. In that case, the handoff is activated and the decision tree stops running. The conversation is transferred to the agent.

# Acceptance Criteria

## Decision Tree recommendation

- Decision tree recommendation should be same as the one mapped to the intent
- Decision tree recommendation should be a hyperlink
- Clicking on hyperlink should open the Decision tree tab with recommended decision tree showing on top
- Recommended decision tree should show under “Recommended Trees” heading.

## Decision tree card

- Collapsed form
  - Show decision tree name as heading
  - Show type of decision tree: deflate value (prompt) - Current scope
  - Show input variables - values for these variables will be asked in this decision tree
  - Button to send the decision tree
  - Button to clear all the selected checkboxes
  - Icon to expand the decision tree

# Acceptance Criteria

- Expanded form
  - The copy of the prompts can be seen alongside the specific variables
  - Agent can select , deselect the variable values to be asked in this decision tree by clicking the checkbox
- On top of the decision tree is a search box where other decision trees can be searched as well

## Sending the decision tree

- Clicking on send gives an option to un-send the decision tree for a period of 5 seconds
- Text on button changes from “Send” to “Unsend” with a reverse timer that goes from 5 to 0.
- Once the timer reaches 0, the prompt is sent to the end customer.

## Decision tree - in progress

- The first prompt of decision tree is sent to the end customer and customer can start responding.

# Acceptance Criteria

- Progress Indicator
  - A progress stepper indicator is shown - the count of nodes is the same as number of variables to be input from the customer.
  - Once the variable is validated by the system, the progress indicator of the variable turns to green. The variables which have not been asked and recognised have node color as grey.
  - Count of identified variables also keeps on updating. (Identified variables/total variables)
- “Send” button now changes to the “Handoff” button.
- Clicking on handoff stops the decision tree to asking further prompts and transfers the conversation to the agent.
- Once handoff is done, Handoff button is disabled

## Decision tree - complete

- Once the decision tree is complete, i.e all the variables have been identified - the handoff button is disabled

# Wireframes - UI Guided Decision Trees

# Simplified UX

now.

## Create Decision Trees

Please select the type of workflow that you want to create?

Smart Decision Tree Templates  
Choose from most popular decision trees used in your industry.

UI Guided Decision Tree  
Create decision tree using a friendly user interface

Decision Tree Flowchart  
Create complex decision tree from flowchart  
(Developers Only)

- Not technical admin now has the option to choose between:
  - Smart decision tree templates: Preconfigured templates in the system. He can now select them and make basic changes to copy and activate these decision trees.
  - UI Guided decision tree: Simple rules-based decision trees.
  - Flowchart: Current complex workflow for guided decision trees. Used for advanced workflows.


# Pre-built Decision Trees


now.


Create Decision Trees > Smart Decision Tree Templates

Please choose a decision tree template

Q Search Template

 Policy Recommendation  
Recommend an insurance policy to the customer based on demographics  
Configure

 Policy Cancellation Request (Draft)  
Capture insurance policy cancellation request from the customer  
Configure

 Customer Profiling (Active)  
Capture the personal details of the customer.  
Deactivate

- A view of how the pre-configured decision trees will look like to Non technical admin.
- He can now search/configure/activate/deactivate the guided decision trees and perform other actions from this screen.

# UI Guided Decision Tree

now.

Create Decision Tree > UI Guided Decision Tree

Decision Tree Name

Intent  [+Add](#)

[Add Prompt](#)

Prompt 1

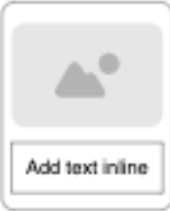
Input Entity/Variable

Prompt 2

Input Entity/Variable

[Add Response](#)

Response



[Add text inline](#)

Human Handoff

Action

Default Response

Human Handoff

Action

Pre-Conditions [Edit](#)

Rule [Edit](#)

- This is how a UI guided decision tree looks like.
- Option to map the tree to an intent is provided so that the tree can be recommended within the intent.
- Prompts can be added to create workflow.
- Pre-condition and Rules can be set from this view.
- Response based on different rules/pre-conditions can be added here.
- Default response is sent when no condition is matched.
- Human handoff option is present in every response.
- Specific actions(API calls) can also be selected for each response.

# Rules/Pre-conditions

now.

Edit Rule(s)

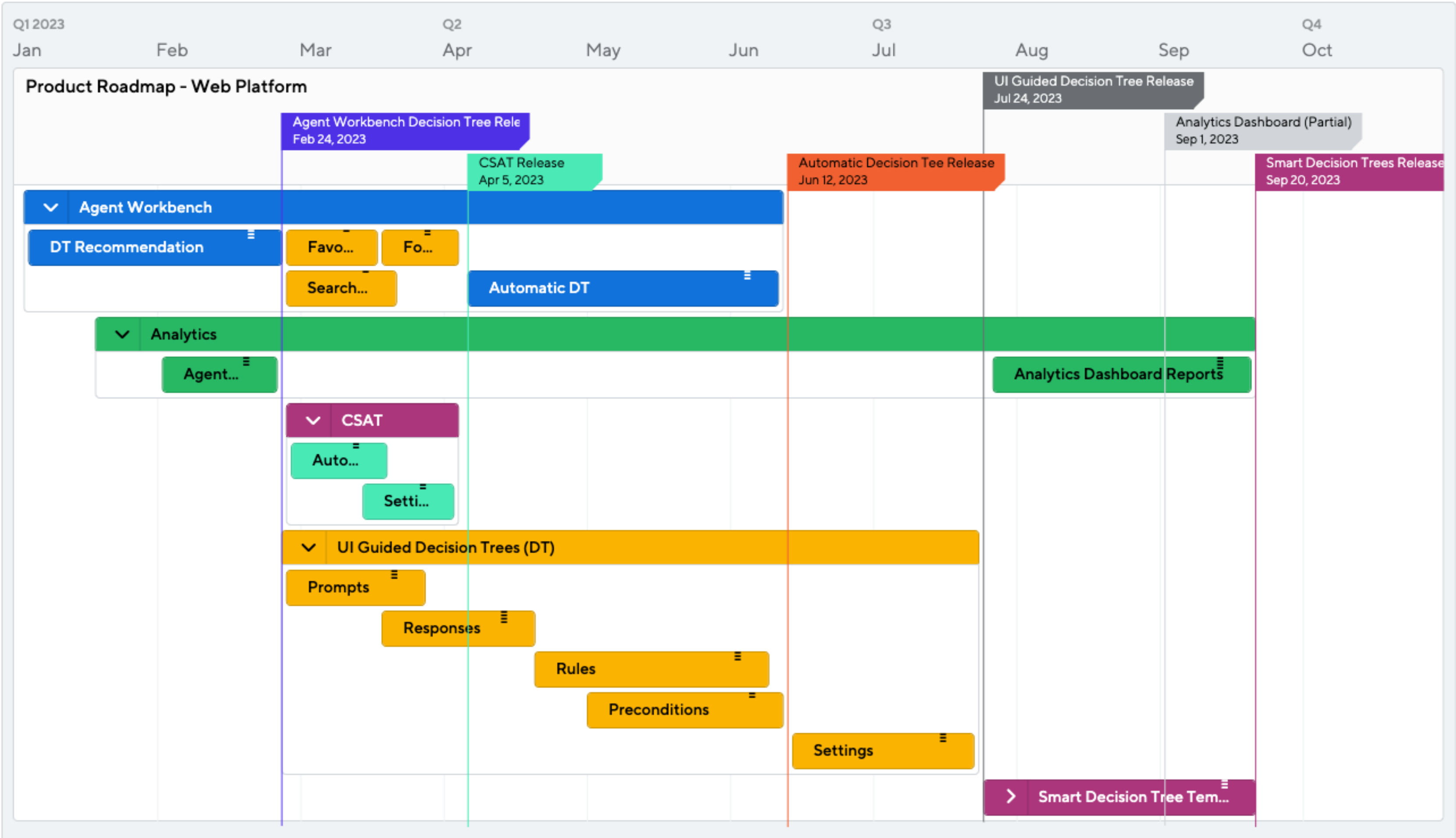
If  is between  and

If  is   [Delete](#)

[+ Add](#)

- Rules and Preconditions can be added/edited in a modal view. This is a GUI based rule editor.
- Rules are saved as text, admin can edit the text as well to update the rules if he understands it.

# Product Roadmap [Click here for detailed Roadmap](#)

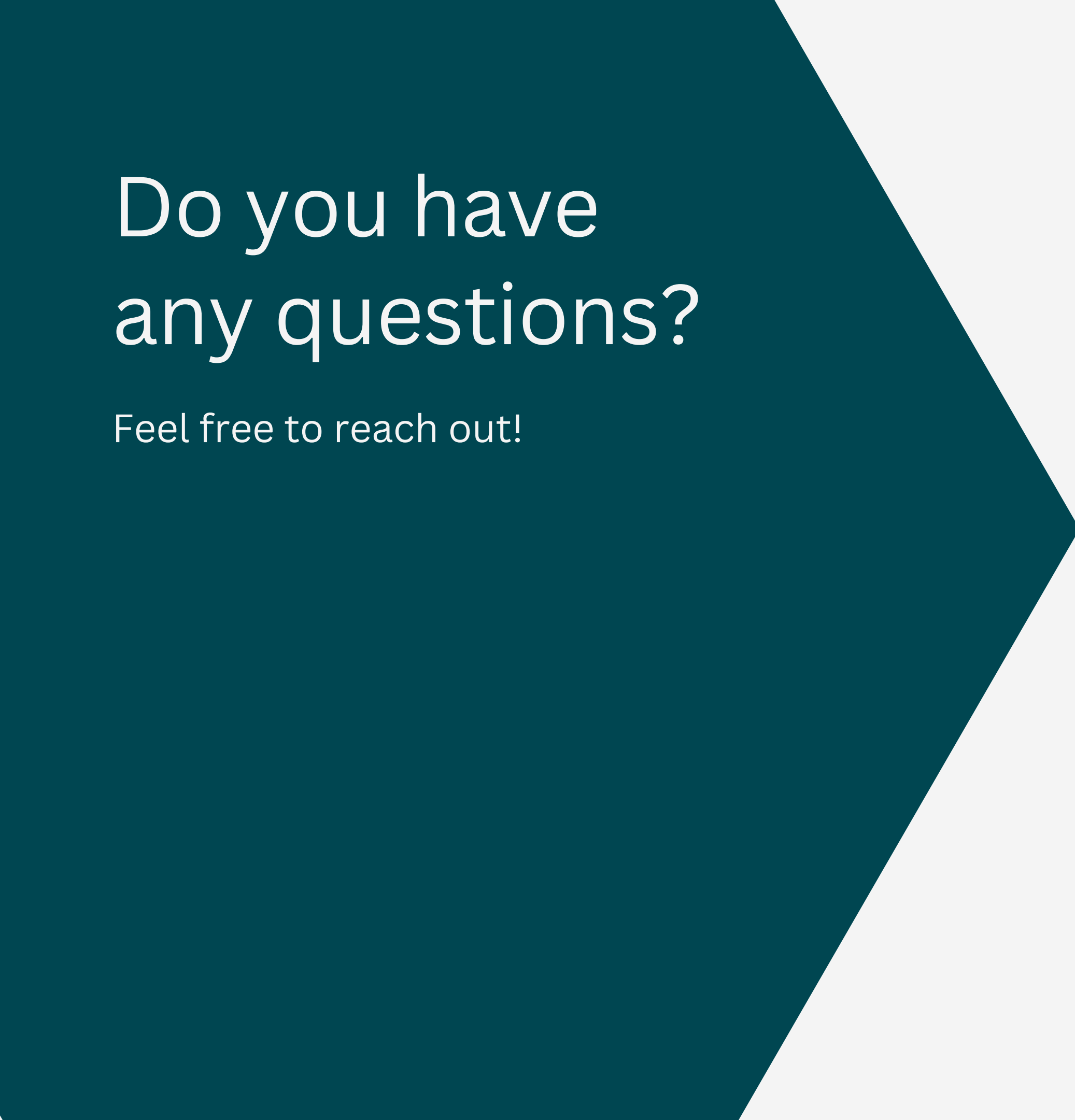


- Strategic Goals**
- Improve Throughput
  - Improve UX
  - Increase Customer Satisfaction
  - Capture Analytics
  - Customer Feedback
  - Internal Optimization
  - Security Improvements
  - Enhance Performance
  - Increase Revenue

# Epics

- Agent Workbench - Decision Tree
- Workbench DT Analytics
  - Analytics Capturing
  - Analytics Reporting
  - Analytics Dashboard
- UI Guided Decision Trees
  - Prompts
  - Responses
  - Rules
  - Preconditions
  - Settings
- CSAT
- Smart Decision Trees

[Click here for more detailed high level epics](#)



# Do you have any questions?

Feel free to reach out!

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