SIJIA HUANG

AI Product Innovation

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01 Product Methodology Exploration

Great product innovators and entrepreneurs possess an advanced blend of design vision, engineering proficiency, business mind, and managerial leadership. That is what I've been striving to be.

Basis

Correct cognition of the objective world is the basis of all methodology.

Methodology

01
Guide

Perceive the macro Guide at the company or industry level, including the long-term vision/mission and short term aims.

02
Position

Identity the Product Position in the whole company or industry.

Formation

Individual's position in the whole.

Neighbor

Adjacent relationship with other individuals.

Boundary

Labor division logic among individuals.

03
Goal

Define the Product Goal, serving as measurement and guidance. Goal-oriented is a key ability of getting things well done.

04
Architecture

Construct the Product Architecture, an objective existence. Excellent product managers have strong architecture competence.

05
Route

Abstract the Route (user behavior route, problem-solving route) based on the objective world.

06
Problem

Find out key Problems needed to be solved, based on a comprehensive analysis of Goal, Architecture and Route.

Where and What are the problems?
What are their priorities?

07
Handle

Design and prioritize effective Handles to solve problems.

08
Scheme

Design executable Schemes according to the Handles.

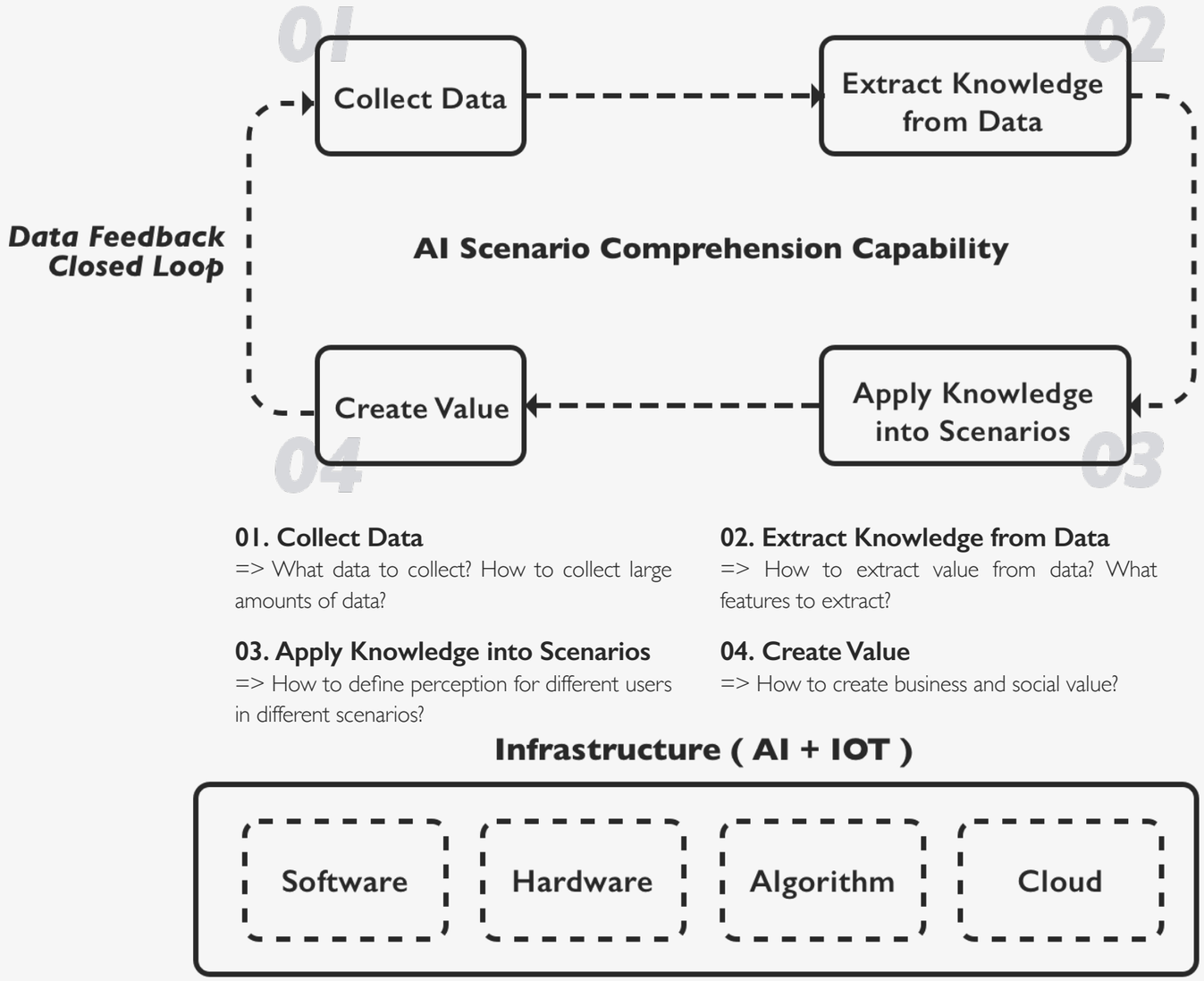
09
Implement

Implement the Schemes efficiently.

10
Review

Review the work process thoroughly to diagnosis, summarize and guide the future work.

01 Core Paradigm of Creating Value with AI



01. Collect Data
=> What data to collect? How to collect large amounts of data?

02. Extract Knowledge from Data
=> How to extract value from data? What features to extract?

03. Apply Knowledge into Scenarios
=> How to define perception for different users in different scenarios?

04. Create Value
=> How to create business and social value?

Algorithm
=> What algorithms to choose? How to set benchmark? How to test effects?

Software & Hardware
=> How to design AI-empowered human-computer interaction mode? How to design strategies manually to improve AI's practical value and user experience?

AI Scenario-based Application

AI must be applied to specific scenarios to create value.

AI Scenario Comprehension Capability
=> AI can efficiently process large amounts of complex unstructured data (multi-dimensional data, e.g. images, videos, audios and texts), and extract valuable knowledge from within, and by apply these Knowledge into scenarios AI can make value. Data and Knowledge are its core.

Data Feedback Closed Loop
=> The growth of AI capability depends on continuous data feedback.

Infrastructure (AI+IOT)

Cloud-based algorithm-driven software-hardware-integrated solutions will be the main form of future AI products.

02 Smart Retail Solution

BRIEF DESCRIPTION

An AI+IOT solution that enables offline retailers to improve business performance through an outlet digitalization and intelligentization process.

PROJECT SCOPE

Date: Jun 2018-Aug 2018 (3 months)
Type: Professional
Team: Smart Retail Department, Megvii Technology Company

My Role

AI Product Manager

I independently designed and launched a core solution of the smart retail AI+IOT solutions, having served 1000+ retail stores.
My work included: front-end application scheme design (function planning, prototyping and interaction design), technical strategy design (for algorithms, software, IoT devices), data analysis and visualization scheme design, project management.

Discover the Value

Traditional Retail are eager for transformation

Facing the grand challenge from the booming online e-commerce, traditional offline retail stores have been caught in a terrible dilemma.

Meanwhile, their inner problems, such as outdated operation methods and lack of advanced technology, have been restricting their development speed.

Transformation and upgrade is the only solution for the traditional offline retail. However, their lack of technological genes makes the transition difficult.

Our goal is to empower offline retail stores with AI technology, improving their business performance.

Conceive the Solution

AI lightens data black hole

While user consumption behavior data is transparent to online e-commerce companies, it is rather a vacuum for offline stores, which impedes them to understand accurate needs and consumption behaviors of their customers.

So the key problem we need to solve is data, namely, helping stores realize a digital upgrade.

This was extremely difficult before, but it is now possible with the strong identification ability of machine vision.

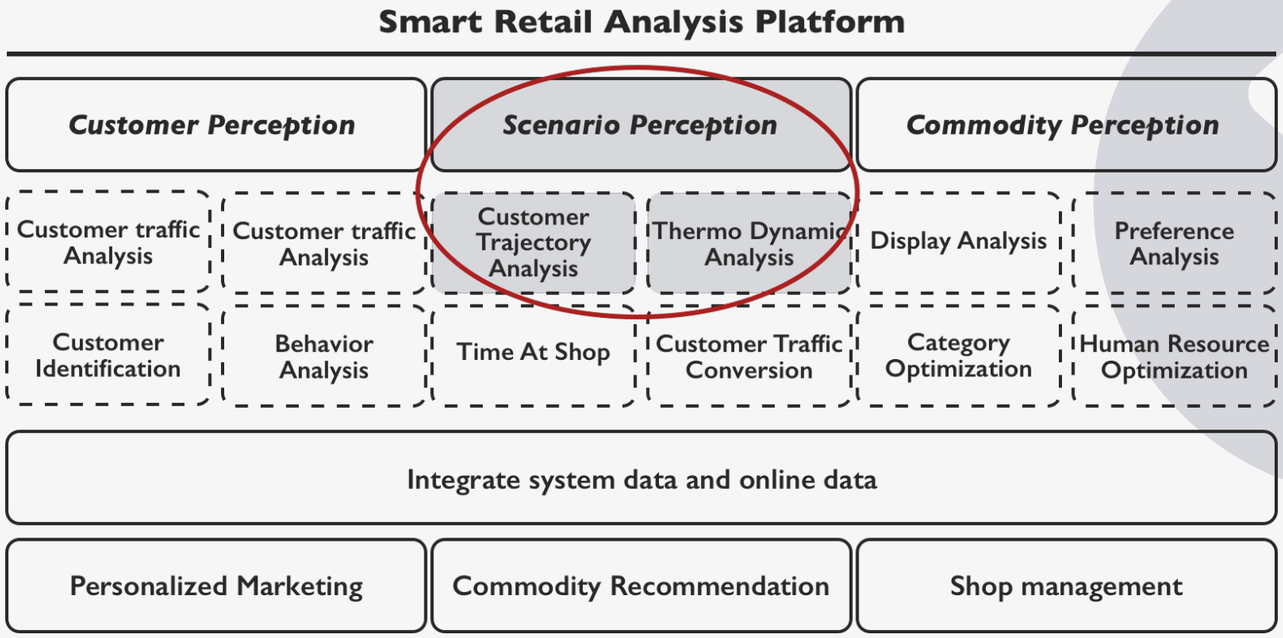
02 Innovation Process

Conceive the Product

Statistics analysis of customer traffic

Retail digitalization includes three aspects: Customer Perception, Scenario Perception, Commodity Perception.

I am independently responsible for the Scenario Perception product module, that is, statistics analysis of customer traffic distribution and trajectory.



Decide the Product Goal

Operation Decision Guidance based on data analysis, aiming to improve business performance

My goal is to help retailers improve business performance with this customer traffic analysis solution.

Specifically, I want to help retailers to grasp the distribution and trajectory trend of customer traffic, and the consumption preferences of customers.

And by integrating their existing ERP/CRM data, we can provide them with intelligent operation decision guidance, including commodity selection guidance (buy what stock, when to buy stock, buy how many stock), and personalized marketing.

02 Innovation Process

Construct the Product Architecture

End-to-end AI+IOT Cloud Solution

01. Intelligent Hardware End => Data Collection

=> The intelligent hardware deployed in offline physical stores are used to collect and upload offline user data.

02. IOT Cloud Processing Layer => Data Processing

IOT Cloud

=>Responsible for the authentication and authorization of intelligent hardware, and the management and version upgrade of devices.

Algorithm Analysis Layer

=>Contains underlying mature algorithm interfaces to realize the algorithm processing of images.

Big Data Processing Layer

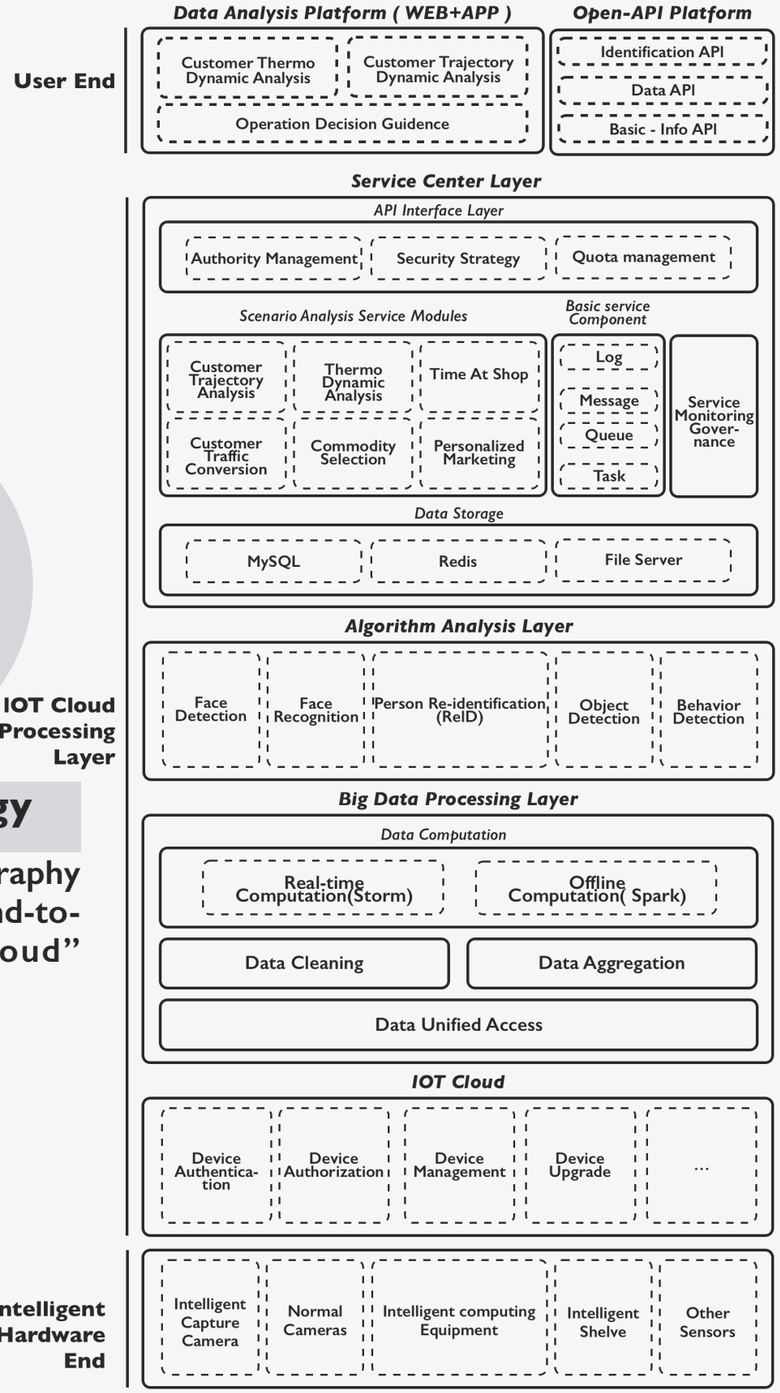
=>Realizes real-time data processing and offline mining and analysis.

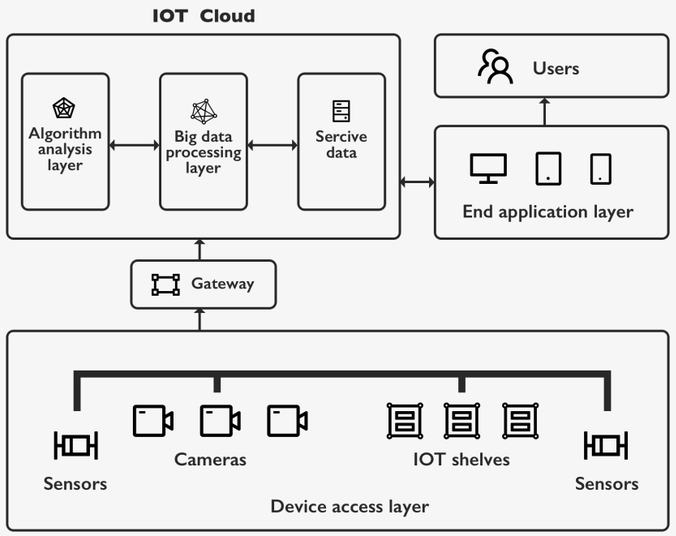
Service Center Layer

=>Data is stored in Ali-Cloud databases. API interfaces are encapsulated for invoking.

03. User End

=> Provides retailers with IOT data analysis service system.





Network Topology

The Network Topography Diagram of the “End-to-End” + “Retail Cloud” Solution.

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02 Innovation Process

Design the front-end product scheme

Interactive data dashboard

01. Dynamic Charts

Customer traffic thermo dynamic chart

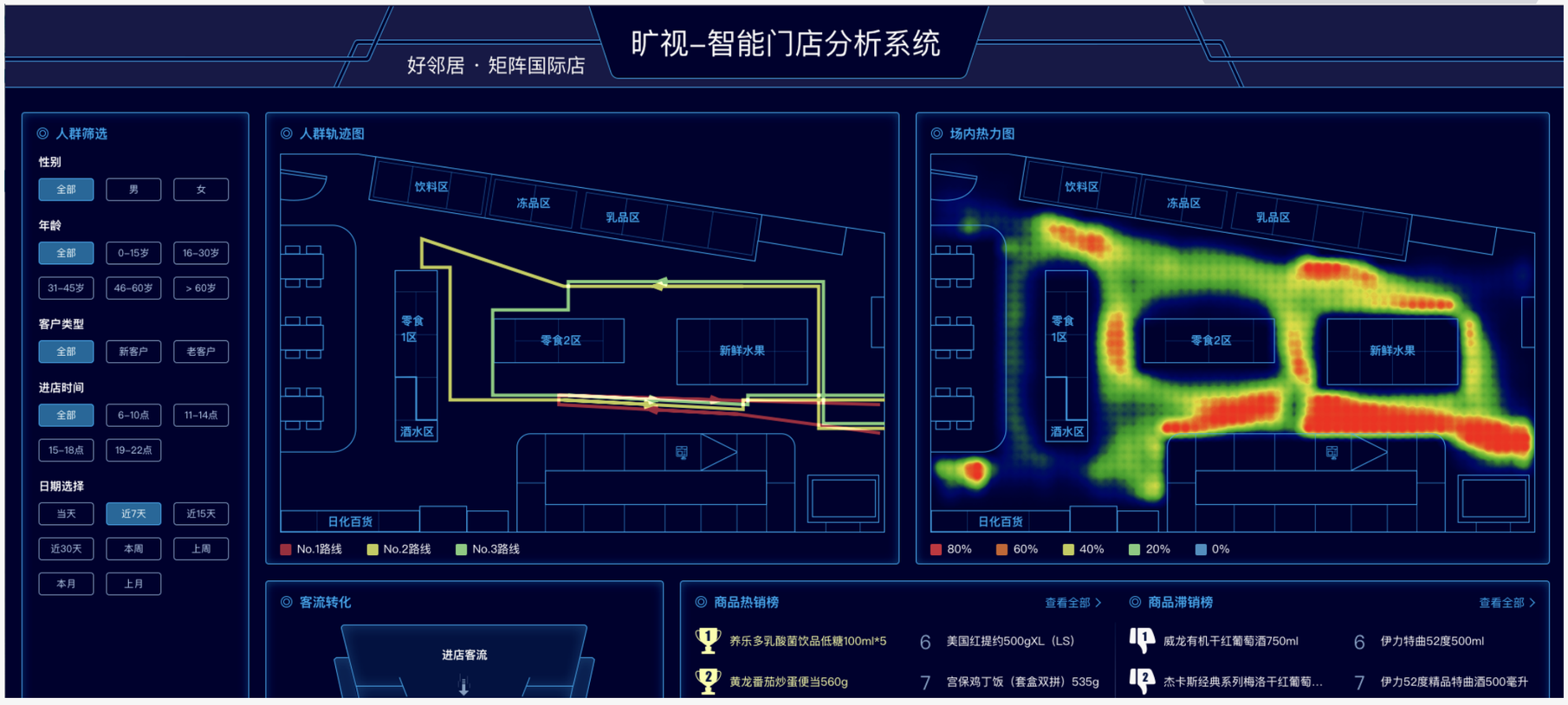
=>Visualize the distribution of customer traffic in each areas in real time, using color shades to distinguish thermo intensity, namely the distribution concentration.

Customer traffic trajectory dynamic chart

=>Visualize the trajectory trends of customer traffic in real time, displaying Top 3 moving lines by data aggregation.

02. Interactive customer filters

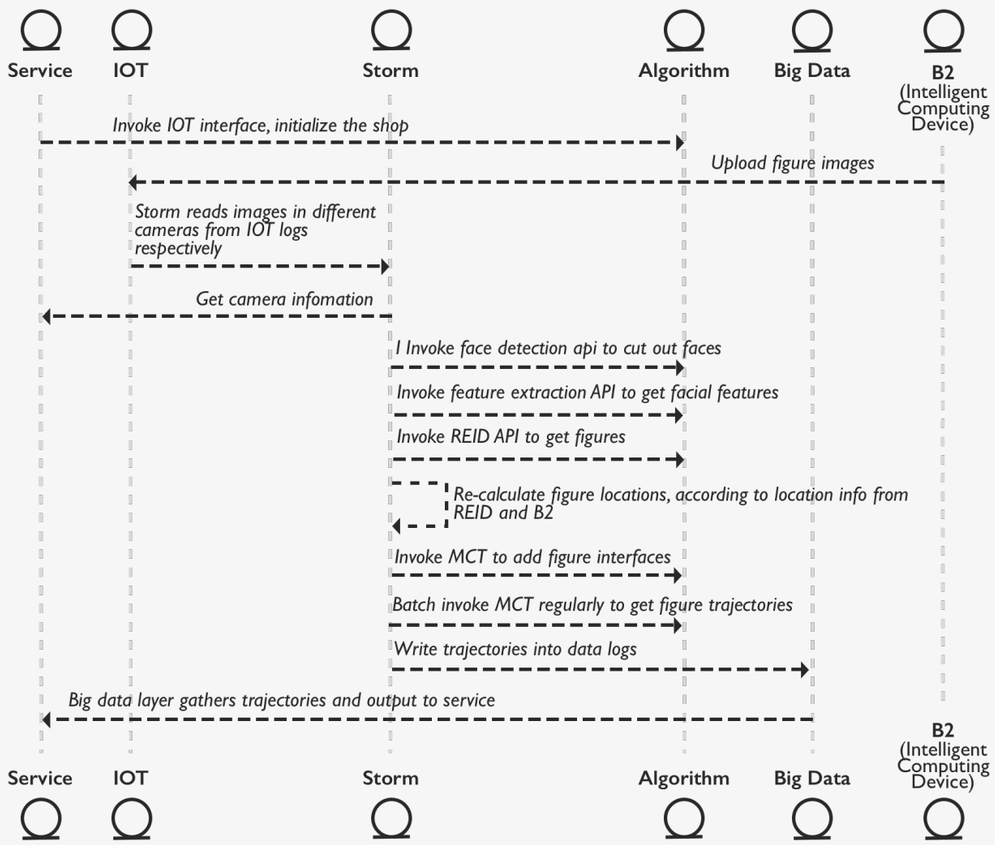
=> Users can filter gender, age, type, arriving time and time range of customers, to grasp customer distribution and trajectory trends under



02 Innovation Process

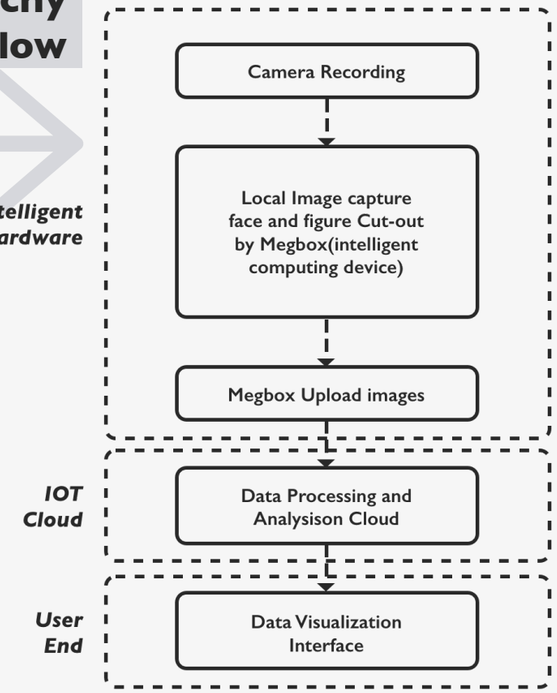
Design the Technical Scheme

I designed and decided the overall technical realization scheme with our research and engineering team.



Detailed Technical Flow

Sketchy Technical Flow



Decide Algorithms

I decided algorithms to be used, and designed benchmarks and strategies for algorithm models.

1.Face Recognition

(1) Face Detection and Facial Feature Points Positioning

(2) Face Contrasting

(3) Face Clustering

2.People Re-identification (ReID)

02 Innovation Process

Decide Hardware

Face Capture Camera

I designed benchmarks for the face detection and tracking algorithms used in the camera.

Megbox (Intelligent Computing Device)

I designed strategies of image pushing for the device.

Define Technical Indicators

I set evaluation indicators for technical process, particularly algorithms, to ensure the landing effect of the AI product.

	Evaluation Indicators	Illustration
Face Image Processing	Figure Capture Rate	*= successful figure detect amount / actual in-shop customer amount*
	Face Quality Parameters	*blur, shelter, minimum pixel size*
	Image Push Rate	*= successful image push amount / image to be pushed amount*
ReID	IDP	*Precision with ID*
	IDR	*Recall with ID*
	F1 Score	*The harmonic mean of IDP and IDR*
	Track Interruption Rate	*= track interruption amount / total track amount*
	Complete Track Rate	*= complete track amount / total track amount*

02 Value and Key Results Key Insights

Value and Key Results

1.Value:

intelligentize and digitalize the retail industry

improve business performance

2.Key Results:

Serving 1000+ convenience stores for over one year, such as Good Neighbor.

Re-purchase rate increased by 70%

Key Insights

AI+IOT is future

I believe AI+IOT will be the main form of future AI products and eventually transform our physical world into an everything-interconnected world.

03 AI Customer Service Chatbot

BRIEF DESCRIPTION

An intelligent chatbot that serves as customer service, helping users quickly locate and solve problems.

PROJECT SCOPE

Date: Dec 2018 - Apr 2019
Type: Professional
Team: AI Labs, Didi Chuxing Technology Company

My Role

AI Product Manager

I designed and built a completely renewed bot version with higher intelligence, together with my mentor.

I am responsible for the specific design of the product. I cooperated with research and engineering teams to implement the product.

Meet the Challenge

Improve the chatbot's problem-solving capability

Didi is a car hailing APP with 100 million users.

Every day, 200K users come to the customer service chatbot for help.

However, previously the bot had a low service capability. On the one hand, it could not solve user problems, resulting in bad user experience. On the other hand, too many users transferring to human customer service led to high operation cost of customer service.

So, the challenge is to improve the bot's problem solving capability to better serve users and reduce the company's operation cost.

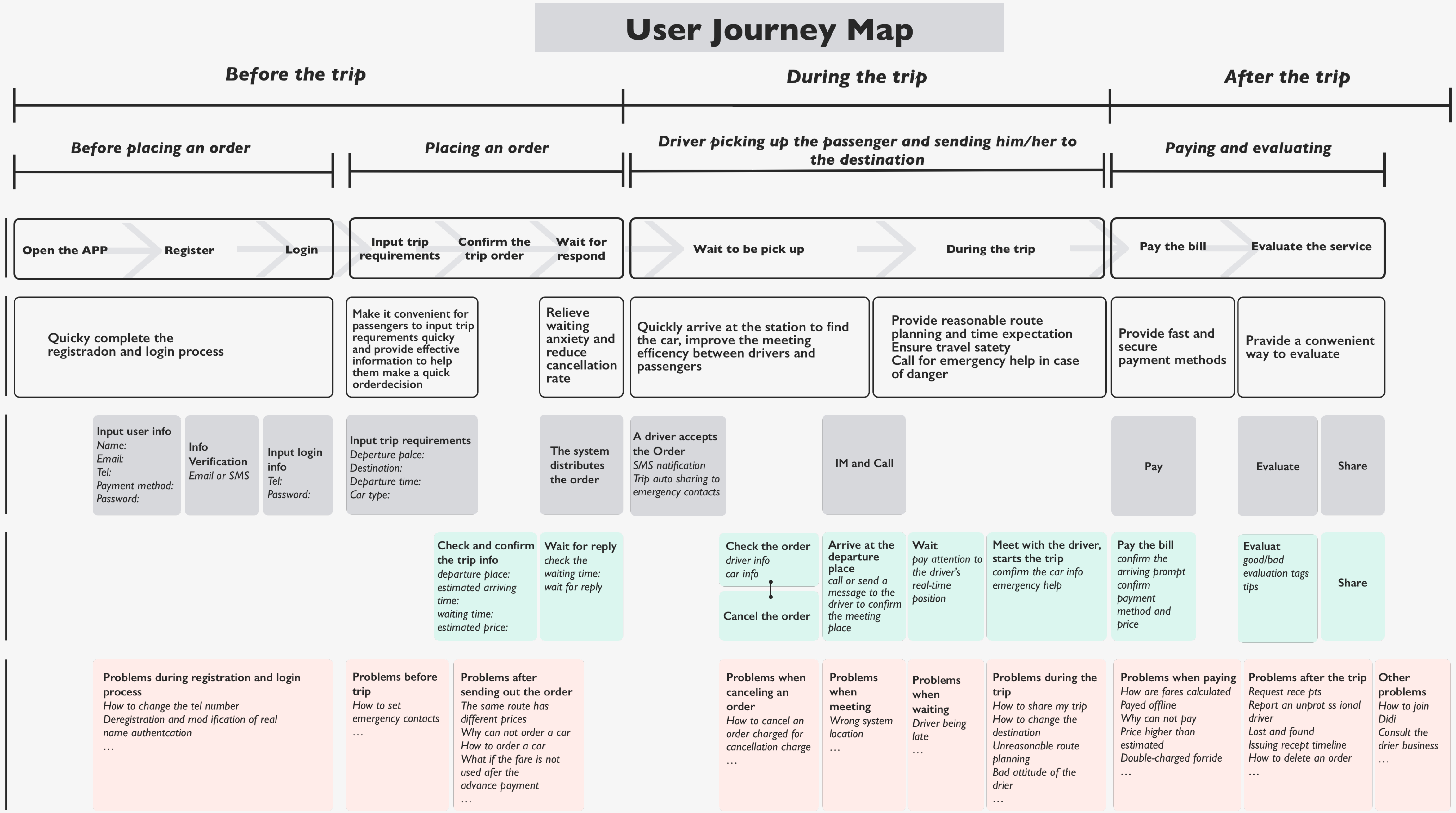
03 Innovation Process

User Research

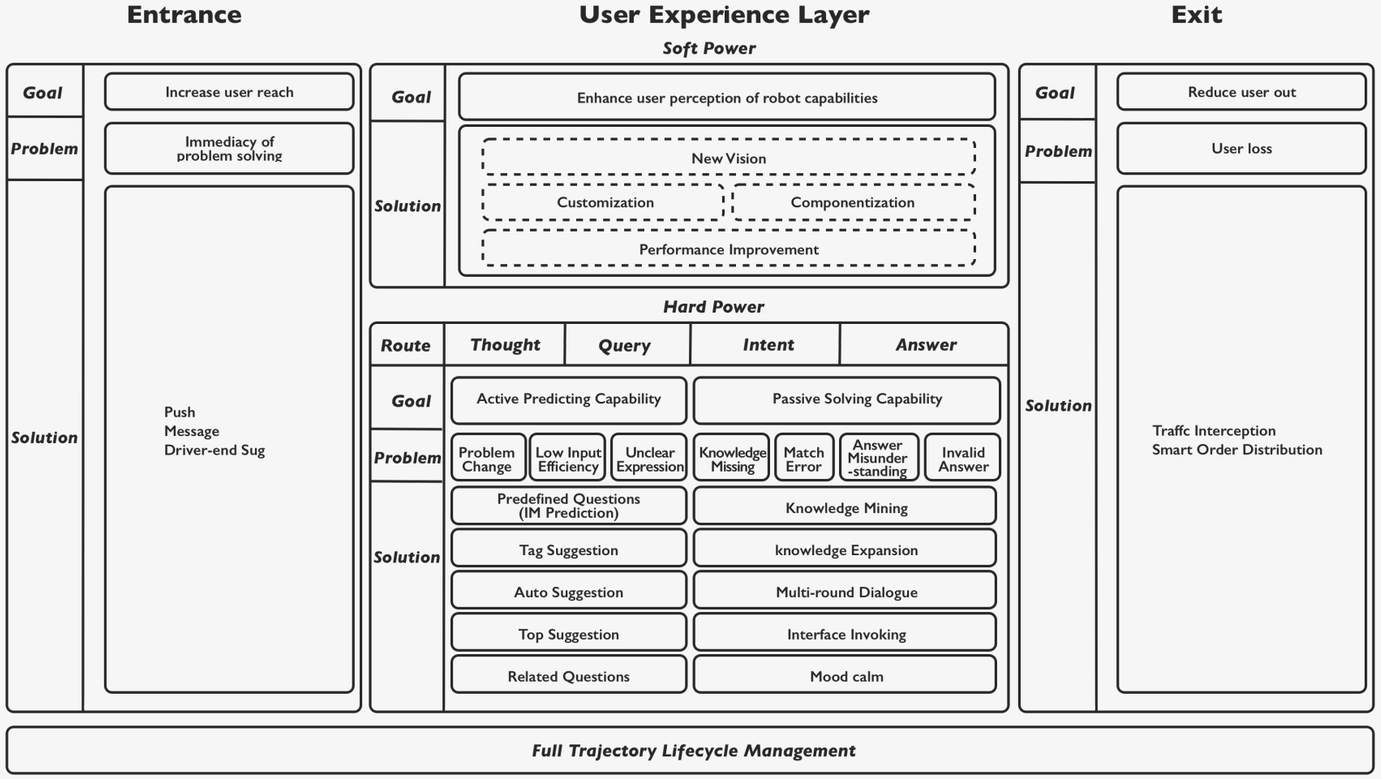
Analyze user behaviors using user journey map

Considering that user problems (that they might ask the bot) can occur at every link in using Didi APP, so I made an User Journey Map of Didi APP, based on user behavior observation and business logic process analysis.

My purpose is to discover improvement points on user experience of the bot, by checking user touchpoints from a global view.



03 Innovation Process



Construct the Product Architecture

01. Entrance
=> For users from different channels, we should help them locate problems quickly, and distribute user traffic correctly.

02. User Experience Layer
=> We should improve the chatbot's problem-solving capability to better serve our users.

03. Exit
=> We should reduce user loss and empower human customer

Abstract the User Route

The user route in using the bot

Thought → Query → Intent → Answer

Find out Key Problems

Based on user behavior observation at every link of the user route, I abstracted key problems of users in using the chatbot.

Design Solutions

01.Active Predicting Capability

It mainly solves problems in the process from Thought to Query, for which I decided two optimization directions.

Building Active Interaction Capability

In observing users' conversations, I found users tried to make interactive conversations with the bot, but a lack of guidance resulted in low communication efficiency.

Thus I thought changing the interaction mode from passive into active can reinforce the guidance and effectively optimize user experience.

Building Smart Recommendation Capability

I thought AI could make the chatbot's active interaction capability more intelligent, by comprehending user scenarios, locating user problems quickly and providing more accurate answers.

02.Passive Solving Capability

It mainly solves problems in the process from Query to Intent to Answer. I decided two optimization directions.

Improving Single-round Dialogue Capability

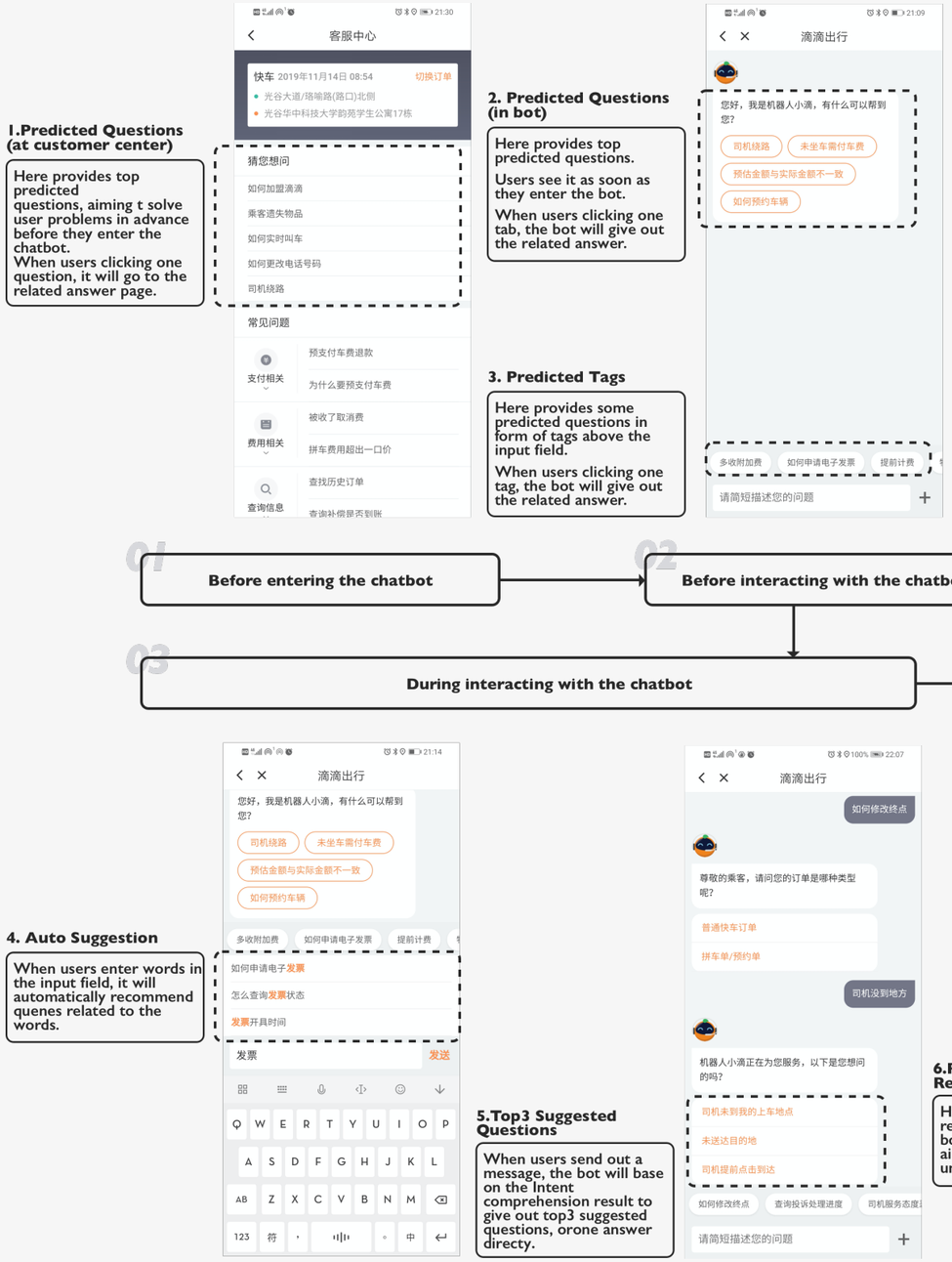
The single-round dialogue capability could be improved to be more efficient in solving user problems, by methods as invoking interfaces and adding external links.

Building Multi-round Dialogue Capability

The bot only had single-round dialogue capability, so it was highly necessary to build its multi-round dialogue capability, which is effective for clarifying user intentions and optimizing conversation experience.

03 Innovation Process

Design Product Schemes



Build Active Predicting Capability

Smart Recommendation

I built the capability from zero. I designed six smart recommendation ways covering full bot trajectory based on feature mining and intent prediction, aiming to help users locate problems quicker.

Feature Mining: covers three feature dimensions: passenger, driver and order; offline and real-time features are both utilized.

Intent Prediction: predicts user intents based feature mining and NLP techniques.

03 Innovation Process

Improve Passive Solving Capability

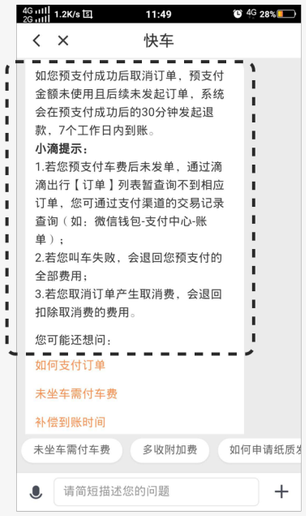
Old solution

Single-round dialogue, a single and long answer.

Weaknesses

1. too long: without considering user reading experience.

2. Unintelligible: it combines all conditions in one single text, which makes it hard for users to understand.



New solution

Multi-round dialogue in the form of rhetorical questions.

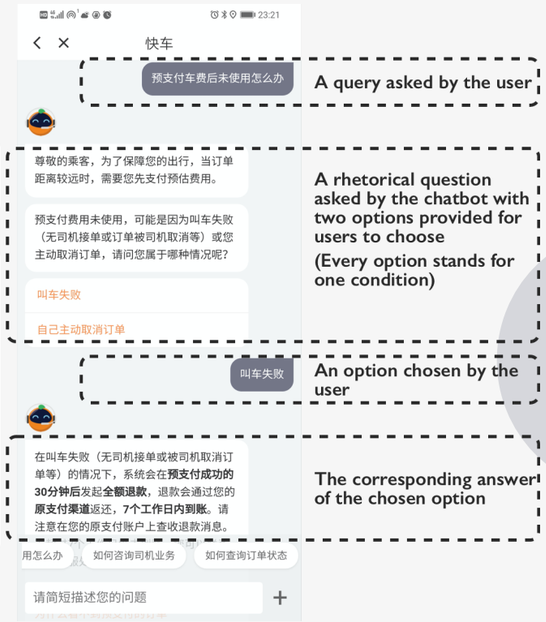
Strengths

1. Narrow down user intentions.

by asking rhetorical questions progressively, the bot can narrow down user intention and provide the user with one most accurate answer.

2.Optimize user reading experience

by scenario classification, one long answer is divided into several short answers, which is more intelligible.



Rhetorical Multi-round Dialogue Structure

optimize intent identification

By scenario classification, it can narrow down user intentions and provide users with more targeted and accurate answers

Interface Invoking and External Links

Fast passages for users in problem solving

When users clicking the button or the text link, it will directly jump to an external link page

Some interfaces are invoked to fasten users' problem solving process, such as recent 7-day order inquiry interface

03 Innovation Process

Product Evaluation by Data Monitoring

Define Key Data Indicators

01.Objective

Improve the chatbot's problem-solving capability.

02.Key Data Indicators

To quantify the objective, I defined two key data indicators based on user behaviors.

User Transfer To Human Service Rate and User Satisfaction Rate.

(1) User Transfer To Human Service Rate

It means the rate of users transferring from the chatbot to human service.

When users turn to human service for help, it means their problems are not well solved by the chatbot.

The lower the chatbot's capability, the higher the rate and the operation cost of human service.

(2) User Satisfaction Rate

It means the rate of users who are satisfied with the specific answer given by the bot.

If users are satisfied with an answer, it usually indicates their problems are well solved by it.

Choose
Useful or useless

Users can voluntarily evaluate each bot answer by clicking one of the two buttons "Useful" or "Useless".

This helps us decide and prioritize answers to be optimized.

Choose
Reasons of "Useless"

When users click"Useless"button, four reason tags will appear for them to choose why they feel the answer being useless.

This helps us decide specific optimization scheme for each answer.

Design Event Tracking Schemes

Next I designed event tracking schemes to collect data for indicator observation.

01.To calculate User Transfer To Human Service Rate, we planted statistical codes in all key entrances to human service to track each user's route.

02.To calculate User Satisfaction Rate, I designed a user feedback feature under each bot answer.

03 Innovation Process

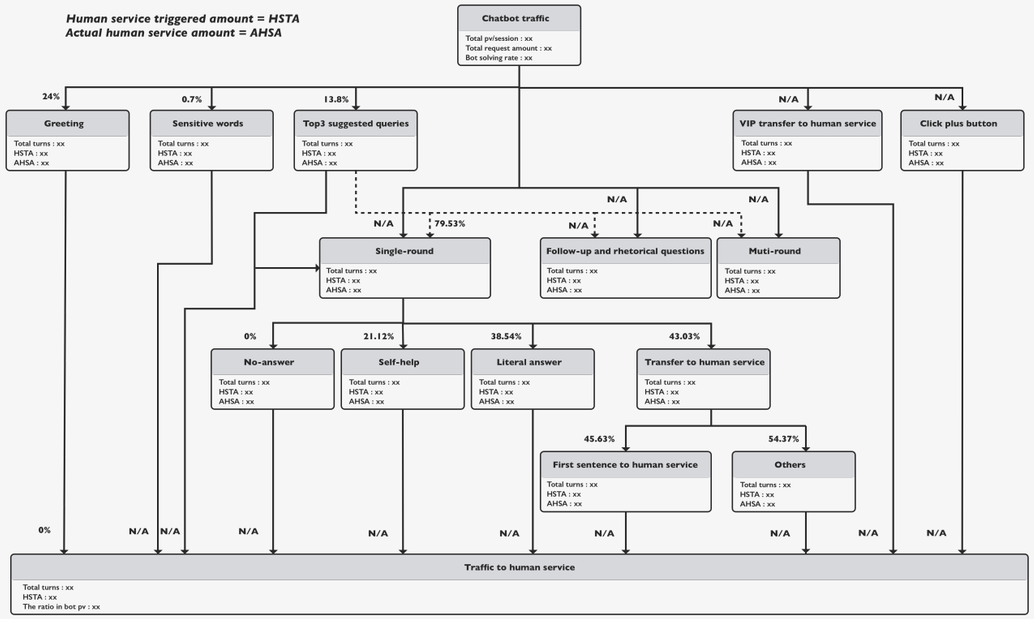
Design Data Dashboards

Chatbot Data Funnel

Monitor effects of new features macroscopically

I designed the data funnel by analyzing the full user behavior trajectory in the bot.

It shows user traffic in the bot globally, including user flow paths and conversion rates in key nodes from bot to human service.



AB Experiment

Observe effects of new features microscopically

I conducted AB Texts to test new features and strategies, and decided whether to use them based on indicator observation.

EXAMPLE

01. Experimental Subject:

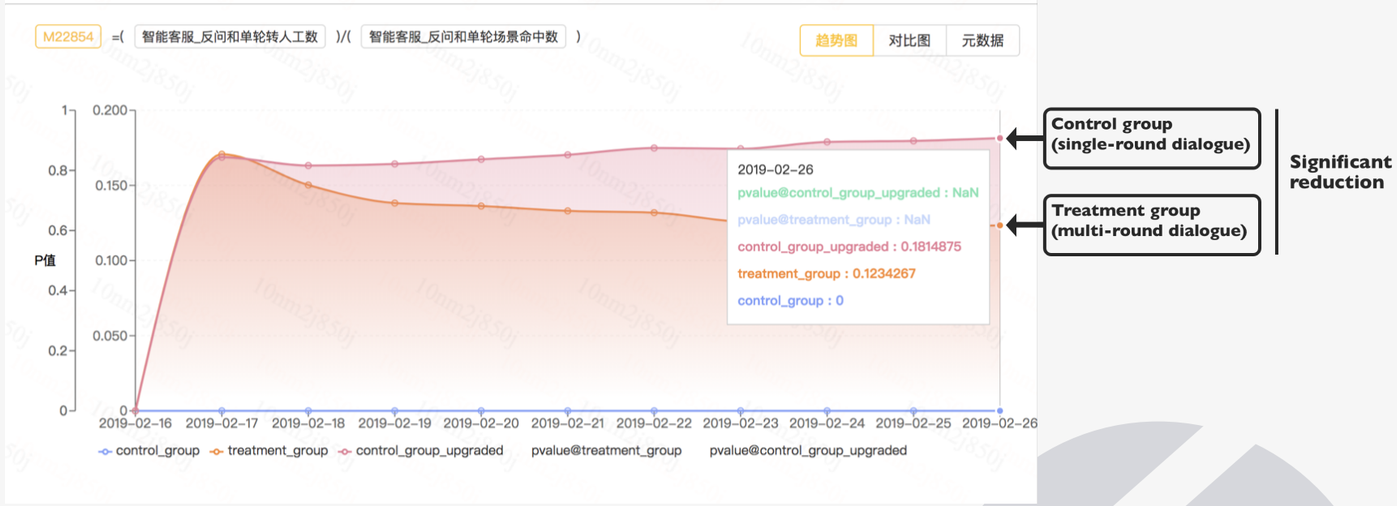
Why can not order a car?(a top unsatisfactory query

02. Tested Strategy:

Rhetorical multi-round dialogue structure

03. Observation Indicator:

User Transfer To human service Rate



03 Value and Key Results Key Insights

Value and Key Results

Key Results

01. Overall User Transfer To Human Service Rate:

original value	=>	actual result
39%		28.7%

02. Overall User Satisfaction Rate: Improved to 25.8% (+5.3%)

original value	=>	actual result
20.5%		25.8%

User Value

Experience Optimization

01. Problem Solving:

Help users solve problems.

02. Time Saving:

Save users' time of waiting in line for human customer service and communicating with them.

Businesss Value

Finance Optimization

01. Cost Reduction:

Help the company save operation costs on human customer service.

02. Create Technical Revenue:

By opening up AI capabilities to the outside companies, we can earn technical revenue for the company.

Key Insights

01. Building the technical innovation ability for a company is more important than a product's success or failure.

The value of these AI products not only lies in itself, but also built the AI technical foundation for the company and expanded its innovation DNA.

Specifically, we not only built successful products, but also built an excellent AI team, which will play an more important role in the company's exploring other innovative business in the future.

02. Achieve business value by achieving user value

Business value and users value are not contradictory, but actually dialectically unified.

As product managers, we need to always keep in mind that users are the root of every product. The nature of our work is to achieve business value for our company by achieving user value.

04 AI Customer Service Assistance System

BRIEF DESCRIPTION

A smart assistance system that improves human customer service efficiency in addressing user problems and filling in work orders.

PROJECT SCOPE

Date: Dec 2018 - Apr 2019
Type: Professional
Team: AI Labs, Didi Chuxing Technology Company

My Role
AI Product Manager

I designed and launched an AI Customer Service Assistance System from zero, together with my mentor.

I'm responsible for the product from planning and developing to landing and testing. I cooperated with research, engineering, data science, customer service teams to implement the product.

Discover the Value

Traditional Retail are eager for transformation

Didi is a car hailing APP with 100 million users.

Every day Didi's customer service team has to address a huge amount of user complaints, which has cost great expenses for Didi.

So, how to improve human's work efficiency and lower expenses on customer service was a grand problem for Didi.

Decide the Orientation

Augment human instead of replacing

Since AI technology is not mature yet, to completely replace human customer service with AI is not practicable.

So our product orientation is to augment human work ability by building a smart assistance system for human.

04 Innovation Process

User Research and Solution Design

User Research
Field Investigation and User Interview

01. Time: Mar 2019 (3 days)

02. Site: Workplaces of outsourcing customer service in Changsha, China

03. Investigation Activities:

(1) Worked as a customer service staff for two days, to experience their real workflow and discover their pain points;

(2) Interviewed staff to know about their pain points.

Abstract the Route
How human deal with a work order?

From user research, I abstracted the workflow of human customer service as three steps:

01. Problem Locating

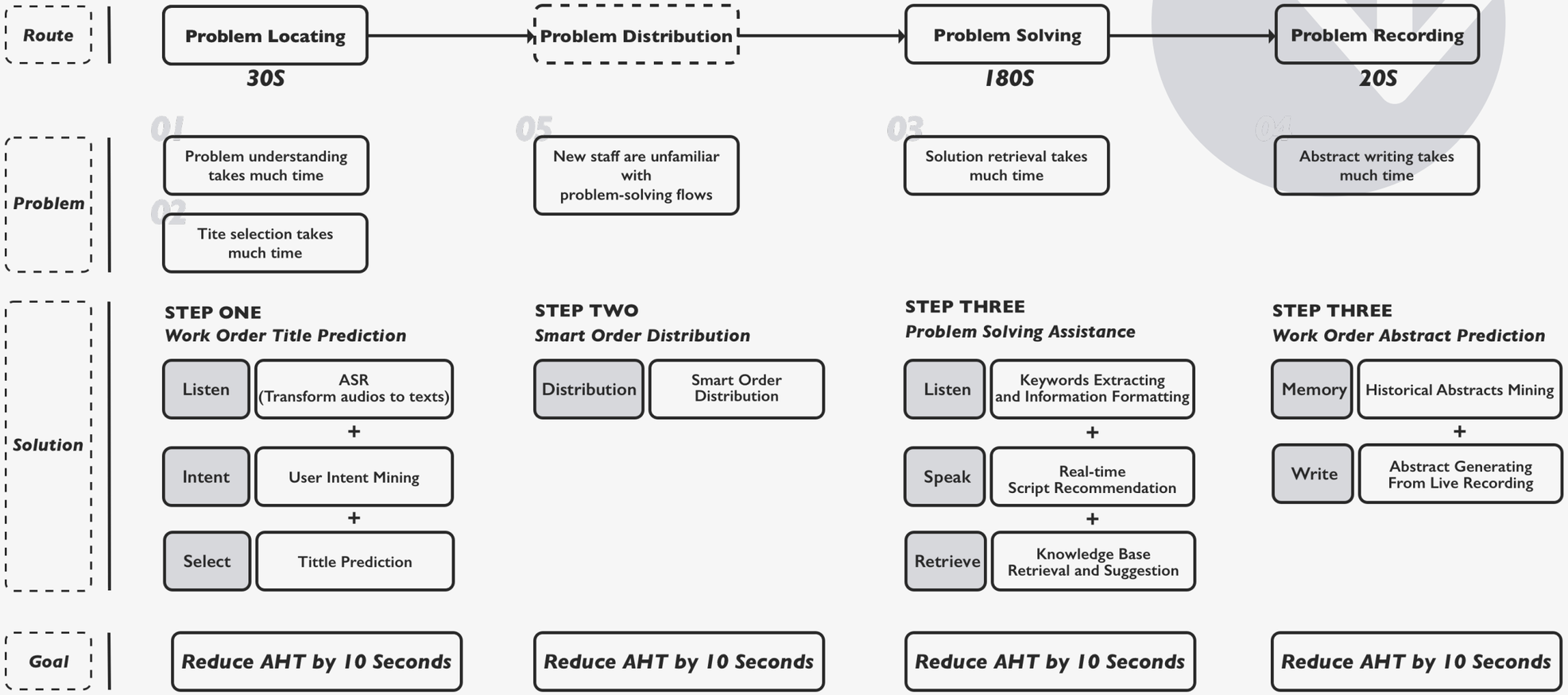
=> Guide the user to express his/her problems, and then select the title of the work order.

02. Problem Solving

=> Solve the user's problem by retrieving the related solution in the knowledge bases.

03. Problem Recording

=> Write an abstract in the work order after solving the problem.



04 Innovation Process

User Research and Solution Design

Find out Pain Points
Where are the most time-consuming parts?

I found out the pain points of users, namely the most time-consuming parts, in each step of their workflow.

01. Problem Understanding
=> It usually takes several rounds of dialogue to understand user's problem.

02. Title Selection
=> The selection path is long, and some titles are hard to find for new staff.

03. Solution Retrieval
=> New staff are unfamiliar with flows and scripts of solving manifold problems.

04. Abstract Writing
=> Every abstract needs to be written word by word manually, which ignores the fact that abstracts of similar problems are usually similar too.

05. Lack of work proficiency
=> The job requires certain work proficiency, but 70% staff were new beginners.

Design effective Solutions

01. Title Prediction
=> AI guides the customer to express his/her problem in one sentence, according to which AI predicts the title and recommends it to human.

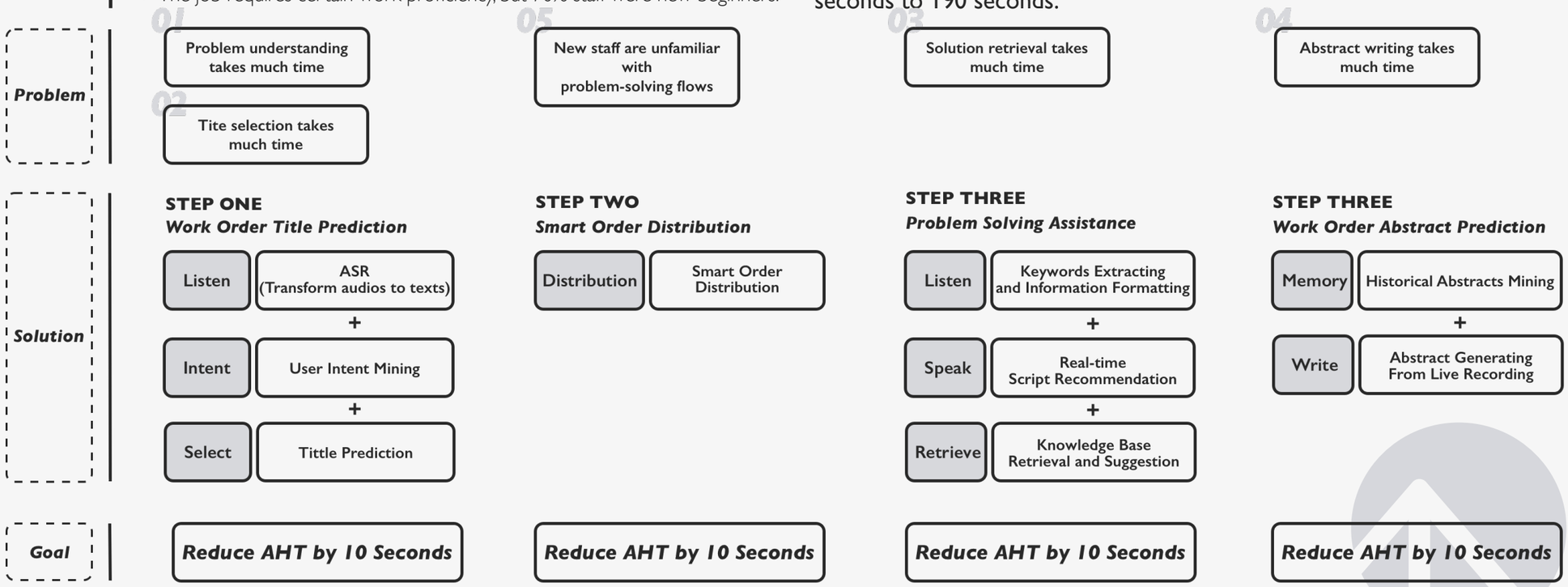
02. Smart Order Distribution
=> AI distributes the located problem to special-skill groups which are proficient in solving corresponding problems respectively.

03. Problem Solving Assistance
=> AI recommends keywords based on data mining, and transforms call records to texts.

04. Abstract Prediction
=> According to the selected title and call records, AI predicts and recommends possible sentences for human to select.

Decide the Product Goal
Reduce AHT by 40 seconds overall

Reduce AHT (Average Handling Time) by 40 seconds in total, from 230 seconds to 190 seconds.



04 Innovation Process

Construct the Product Architecture

I designed the product architecture from zero, which guides the product in four aspects: what data, what techniques, what product scheme, how to implement.

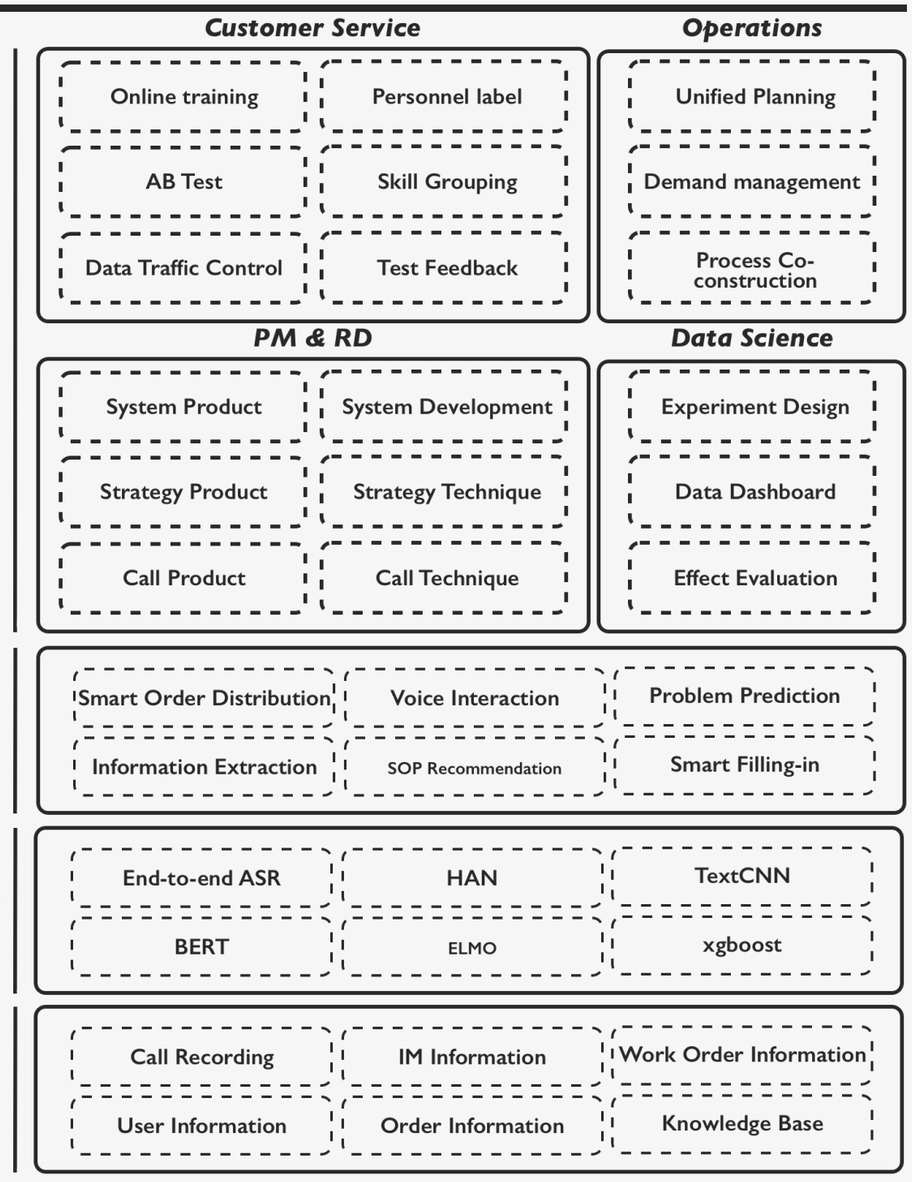
01. Data Layer
=> Three data sources can be used by our product, including user database, interaction information between entities, knowledge base.

02. Algorithm Layer
=> The product is based on ASR and NLP techniques. Use ASR to transform audios into texts, and use NLP to comprehend texts.

03. Application Layer

04. Implementation Layer
=> To land the product, I collaborated with four teams.

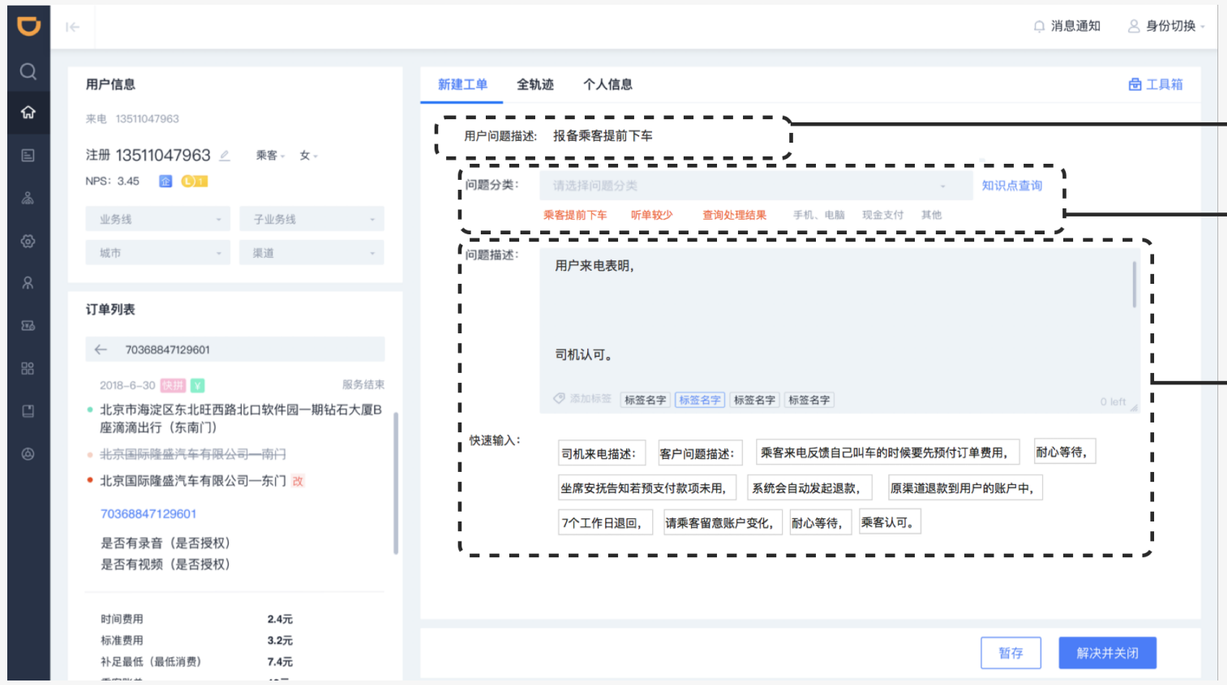
(1) Research & Engineering Teams: I worked with them to develop the product.
(2) Data Science Team: With their support, I designed A/B experiments, data indicator system, and data dashboard.
(3) Operation Team: We landed the product as a strong supplement to their existing system.
Customer Service Team: I conducted user research, product effect experiments, and user training with deep cooperation with them.



04 Innovation Process

Design Product Schemes

Title and Abstract Prediction



Area 1 : User Problem Description

Here shows the description of user problem summarized by AI, based on his/her oral expression

Area 2 : The Prediction

Here shows three most possible titles predicted by AI, based on the problem description.

Human can choose one title by clicking.

Area 3 : Abstract Prediction

Here shows some sentences predicted by AI, based on the title and call records.

When human clicks one sentence, it will automatically go into the abstract input box, and a new sentence will be added.

Smart Order Distribution

Problem Locating, Work Order Distributing | **Problem Solving** | **Data Analysis**

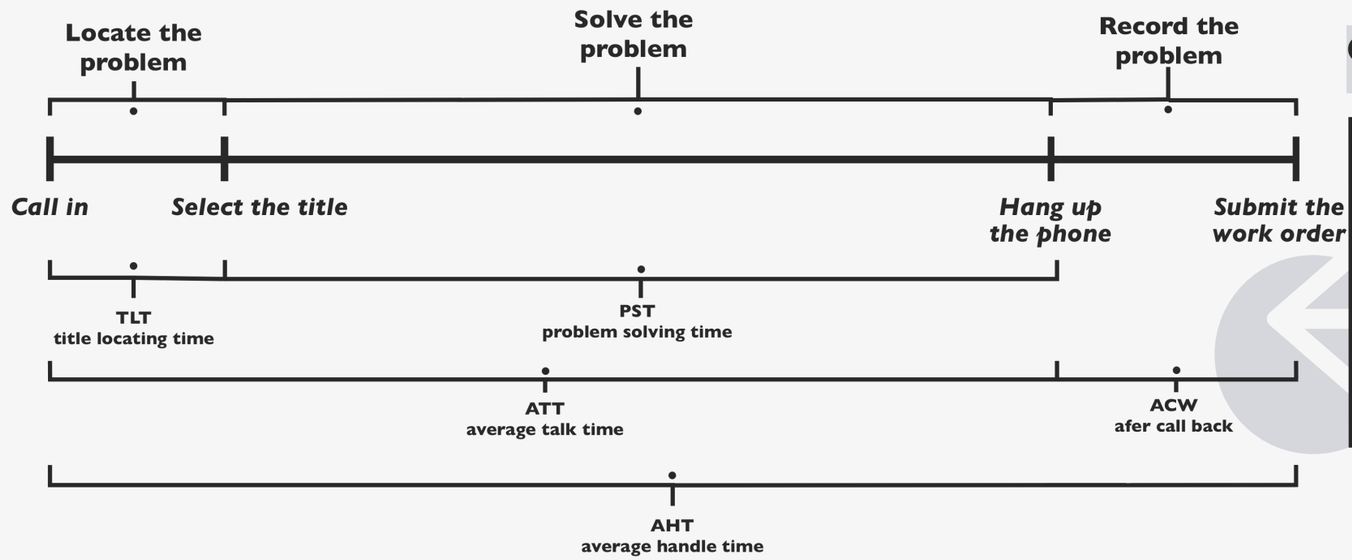
01	02	03	04	05	06
Entrances of Robot to human	Problem Locating	Flow analysis	Distribution Decision	Customer Service	Effect Evaluation
STEP 1 *Call-in Analysis*			**STEP 2** *Matching Strategy*	**STEP 3** *Order-distribution Implementation*	**STEP 4** *Effect Evaluation Model*
1. Determine the user traffic at different entrances by data analysis 2. Determine the traffic release schedule according to results of data analysis	1. User Information: user lever, user portrait 2. Order Information: IM info, work order info, robot info 3. Feature Platform	1. Problem Protrait: aging, importance, type 2. User Protrait 3. Customer Service Portrait 4. Preference analysis of customer service	1. Customer service area 2. Customer service preference 3. Customer service efficiency 4. Customer service spare capacity	1. Transfer to the front line customer service 2. Transfer to the second line customer service 3. Transfer to the special skills groups	1. Model effect evaluation

The flow of how I built the smart order distribution module.

04 Innovation Process

Product Evaluation by Data Monitoring

I designed the data indicator system and developed a data dashboard for evaluating the product effect.

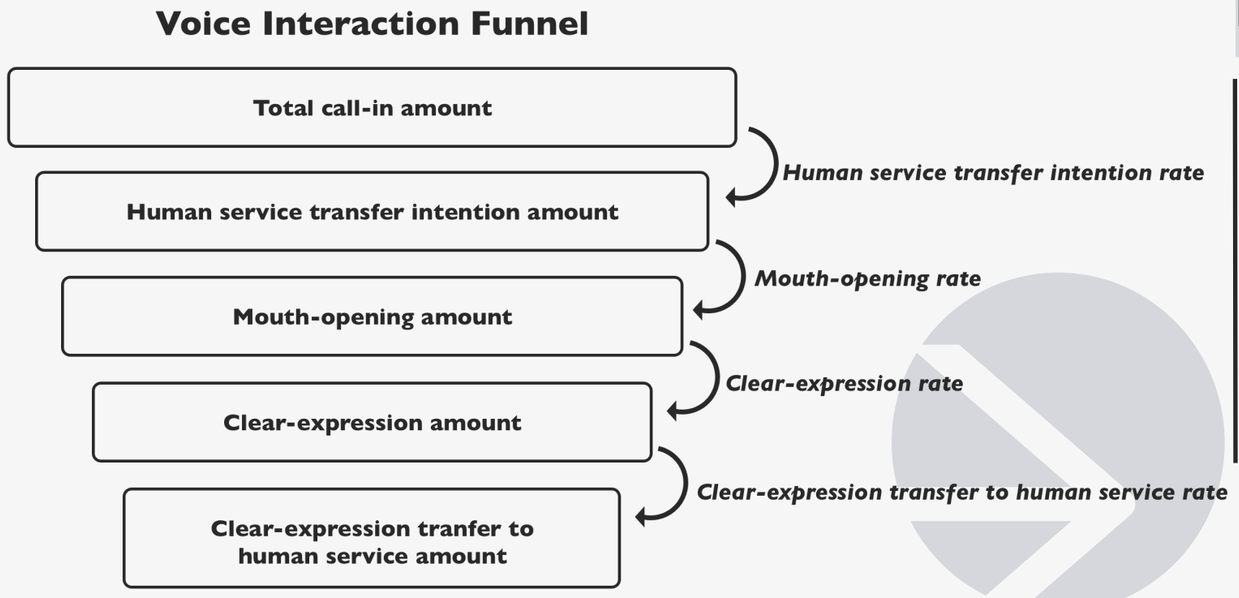


Overall Indicators

01. AHT *Average Handle Time*
=> The average time of dealing with the orders.

02. ATT *Average Talk Time*
=> The average time of talking with the callers.

03. ACW *After Call Work*
=> The average time of following up with the orders



Local Indicators

01.Voice Interaction Funnel
=> Observation indicators using in the period after customers calling in and before transferring to human customer service.

02.Title Prediction Indicator
=> Adoption Rate of Predicted Titles = the amount of titles given by AI that are also adopted by human / total chosen title amount

02.Abstract Prediction Indicator
=> Adoption Rate of Predicted Sentences = the amount of sentences given by AI that are also adopted by human / total sentence amount

04 Value and Key Results Key Insights

Value and Key Results

Reduced Average Handle Time by 42 seconds

original value => actual result

230s **188s**

Key Insights

Know user needs through real research instead of guessing.

When we were about to design the product, our boss told us:

“Don't sit in the office guessing about user needs. Instead, go to the workplaces of customer service teams, experience their real workflow, and know about their true pain points.”

That inspired me to do the field investigation, and keep in contact with the users, listening to their advice in the whole concept-to-launch process.

05 AI Censor System for Travel Security and Compliance

BRIEF DESCRIPTION

A smart censor system that identifies high-risk and illegal trip scenarios in a human-AI collaboration mode.

PROJECT SCOPE

Date: Dec 2018 - Apr 2019

Type: Professional

Team: AI Labs, Didi Chuxing Technology Company

My Role

Product Manager

I designed and implemented the AI Censor System from scratch, together with my mentor.

I conducted background research, planned the whole product, collaborated with research and engineering teams to realize it, and cooperated with business departments to land our product in various business lines.

Discover the Problem

Didi needs to save censorship costs

Didi is a car hailing APP with 100 million users.

Every day, Didi has a staggering amount of orders (million level) to be censored.

These are complex unstructured multi-dimensional data, including images, videos, audios and texts, which are time-taking and has cost great censorship expenses for Didi.

So, how to improve human's censor efficiency and lower censorship costs was a grand problem for Didi Company.

Create the Solution

How about censor under human-AI collaboration?

This problem attracted my keen interest and I found it could be solved with AI by its efficiency strength in processing large amounts of complex unstructured data.

Initially, I designed the system with a pure AI working mode. However, an obstacle was that AI was inferior to human in accuracy in some conditions. So next I refined it into a human-AI collaboration mode, in which human and AI could cooperate closely to achieve a win-win both in efficiency and accuracy.

05 Innovation Process

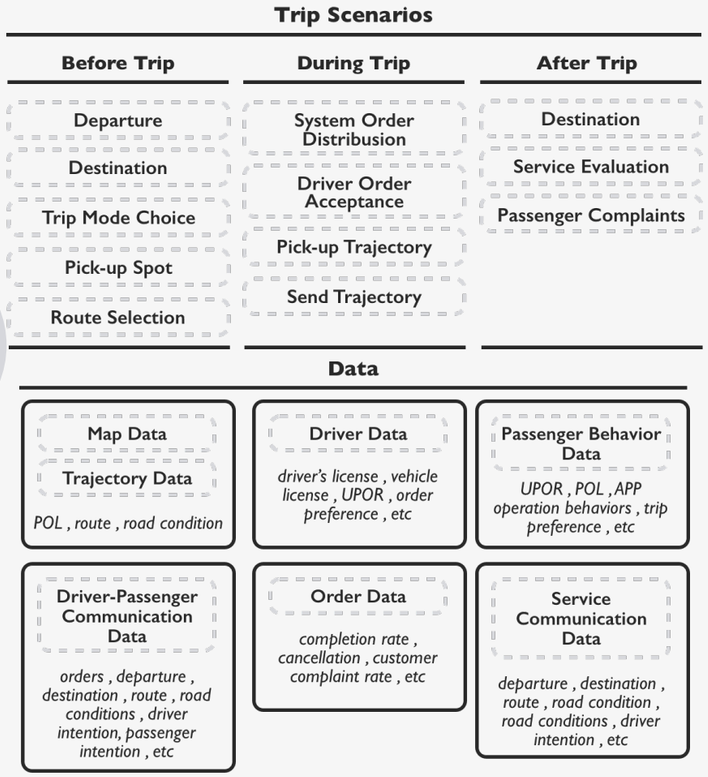
Sort out Scenarios and Data

Great value can be discovered from Big data

Censorship is done according to specific scenarios. So I sorted out the trip scenarios, categorizing them into three classes according to trip sequence.

Data is critical to building an AI system. So I clarified all data we can use, categorizing them into six classes according to source difference.

Besides, according to statistics, platform daily order amount is over 25 million, 50% of which have call records and the audio data amount is over 10 million minutes, from which great value can be discovered.



Set OKR

Raise censor efficiency by 25%

1.Objective: Raise overall censor efficiency by 25%

2.Key Results:

(1) Reduce CPO (Cost Per Order) by 10%

(2) Reduce human censor order amount by 15%

(3) Algorithm benchmarks: driver-accountable precision above 99%, driver-accountable recall above 80%

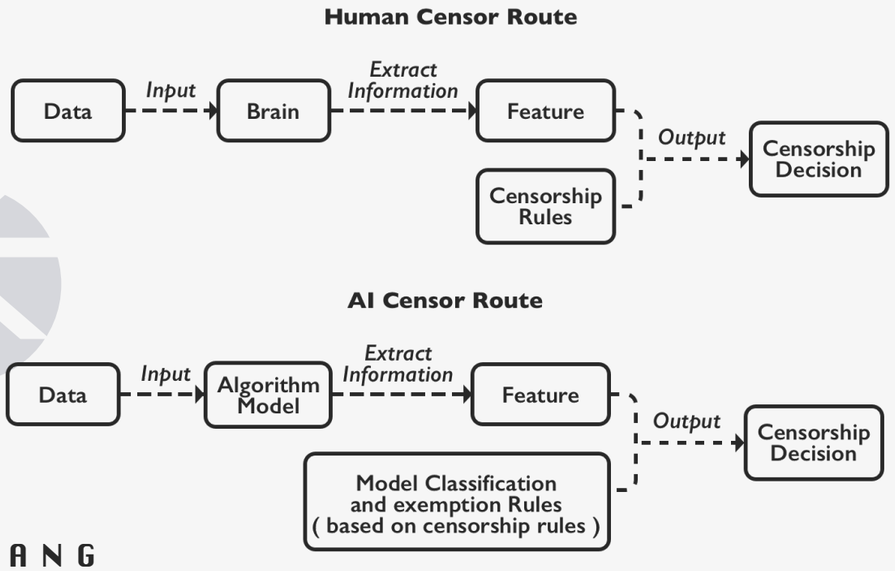
Abstract the Route

How human and AI make censor decisions ?

I abstracted the human censor process, based on which I constructed the AI censor process.

AI can actually function as human brain. It processes data, extracts Information from data, and makes decisions based on given rules.

Here I need to decide : What data to use? What features to be extracted? How to transfer censorship rules into model classification and exemption rules?



05 Innovation Process

Construct the Product Architecture

Construct the Product Architecture
Four Layers from bottom to top

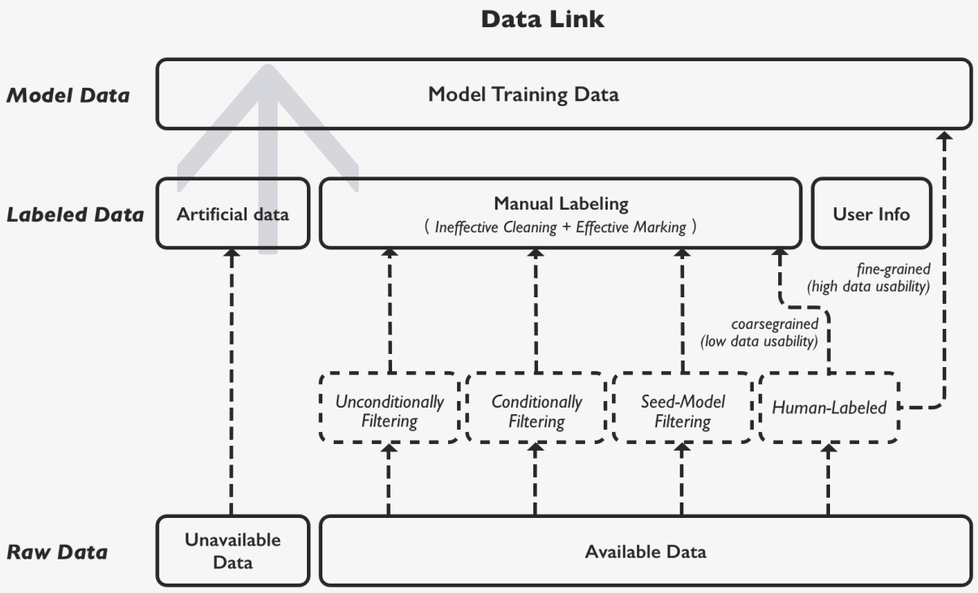
01. Data Layer
=> Clarify all data sources for the product.

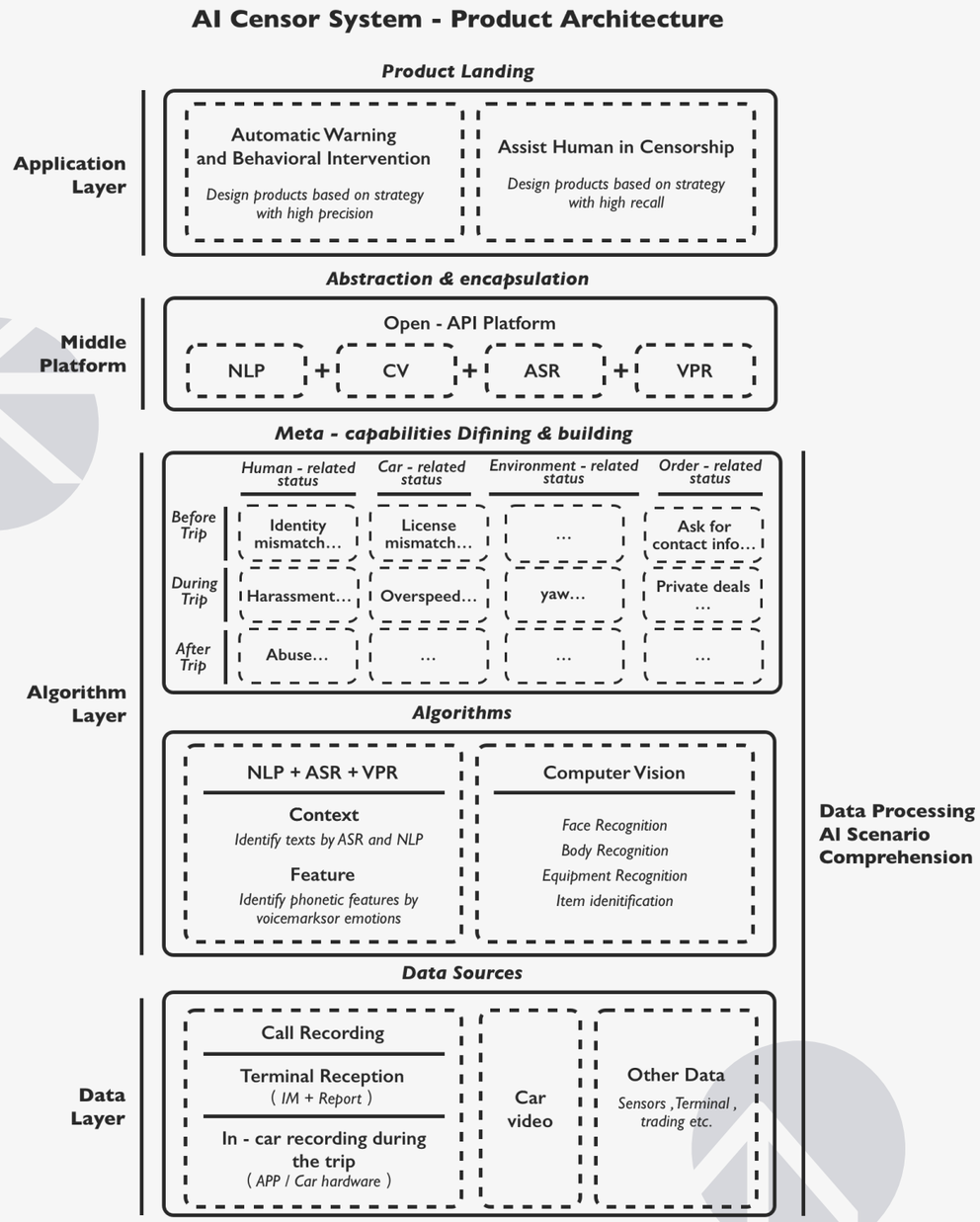
02. Algorithm Layer
=> Define AI techniques to be used to construct our AI system.

03. AI Middle Platform
=> An open-AI platform to carry our AI capability and provide API invocation services for demanders.

04. Application Layer
=> The application modes of our product in solving problems.

Clarify the Data Link
How data flows from bottom to





05 Innovation Process

Insight into key Problems

Which are the most time-consuming and AI-applicable parts?

Problem 1

Long-time recording review

To capture a transient evidence, human has to review in-trip recordings (audios and videos) that last dozens of minutes each, which is the most time-consuming part in censorship.

eg. A driver's smoking motion, which might last only 1 second, usually requires human reviewing the whole video from beginning to end to capture it.

Problem 2

High proportion of unaccountable order

Above 80% of orders are driver-unaccountable, accounting for the majority of human censor time, which is quite time-wasting.

Design effective Handles

Interception and evidence provision together build a human-AI collaboration mode

Handle 1

Order Interception

*Human only need to censor orders in the **shadow part***

Real Results

01. Purpose => Reduce human censor order amount

02. Illustration => Intercept those orders judged by AI with high-precision as driver-unaccountable. Thus human only need to censor orders judged by AI as drivers' responsibility

Handle 2

Hard Evidence Provision

01. Purpose => Improve human censor efficiency (Reduce CPO)

02. Illustration => When orders are judged by AI as driver-unaccountable, their evidence identified out by AI will be provided to human for reference

05 Innovation Process

Design executable Schemes

How to build the AI system ?
The process of builting AI meta- capability

01. Propose AI middle Platform

=> I Proposed to establish an AI middle Platform as our product form which can enhance capability reusability, specifically, developing AI meta-capabilities to identify scenarios and the demanders get them by invoking.

02. Define AI meta-capability

=> I defined AI meta-capability as the minimum constituent unit of the system, which is a collection of AI algorithm models and customized rules, used to solve a specific scenario with minimal granularity.

03. Built AI meta-capability

Prioritize

=>Prioritized scenarios based on revenue estimation, which decides the building sequence

Case Analysis

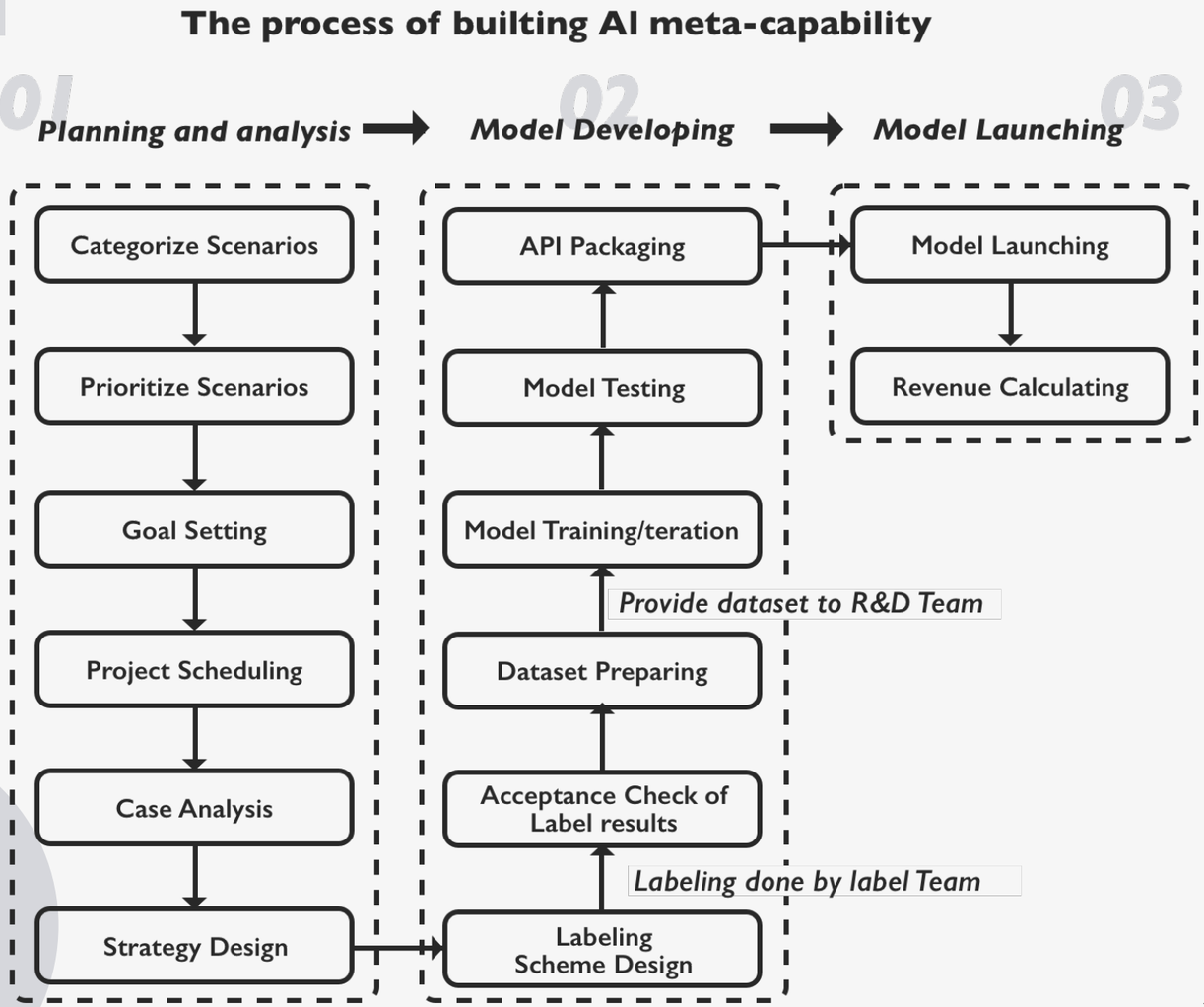
=>Designed data annotation rules through case analysis to ensure effective data training; Designed model classification and exemption rules based on human censorship rules

Model Development

=>Managed the process of data annotation, model development, test and launch

04. Land in business lines

=> Expanded product coverage continuously by providing AI meta-capabilities to more business departments in Didi, including express, special car, taxi, limousine, etc.



05 Value and Key Results Key Insights

Value and Key Results

Business Value (Key Results)
save money

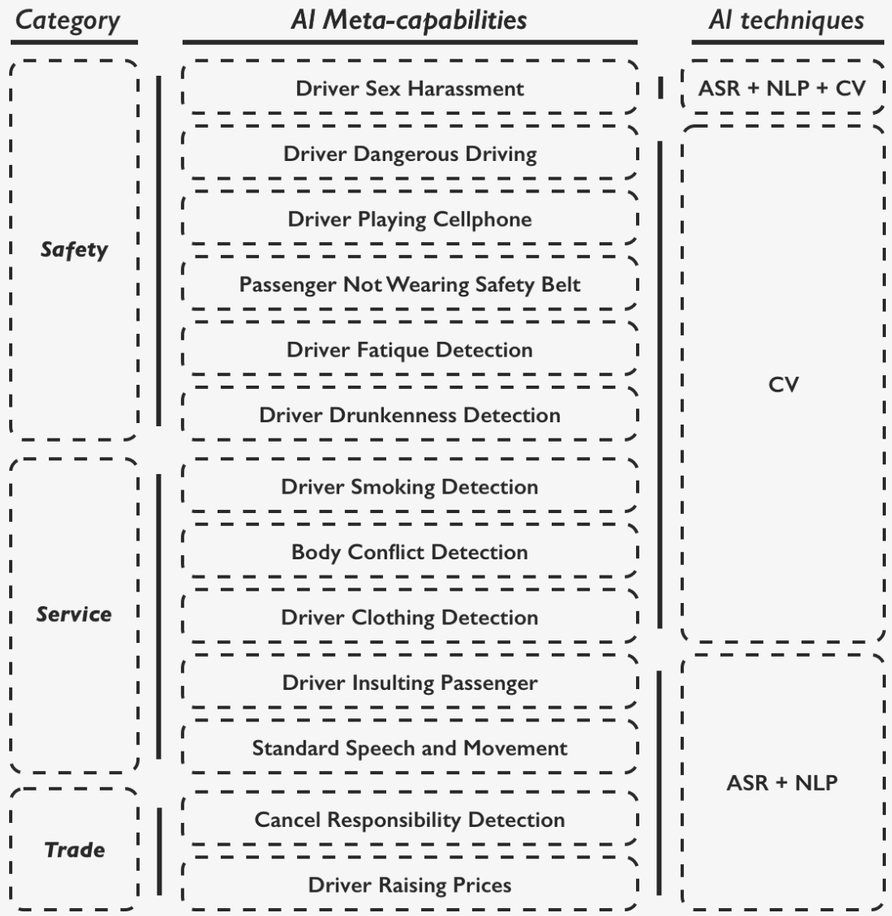
Improved the censor efficiency by 28%, comparing to pure human censorship.

User Value
save users

Our AI system not only achieved business value for the company, but also achieved user value in enhancing platform security and compliance, aiming to make the trips of 100 million users safer and more pleasant.

e.g. Identify driver's dangerous driving behaviors to prevent car accidents from happening. Identify in-car sex harassments to protect women passenger from sexual assaults.

AI meta-capabilities we have built >>>



Key Insights

1. Augment human capability with AI

I believe human-augmentative AI will be the main AI application form, in which AI is used to augment human capability to make humans work better, rather than replace them.

2. Value discovery

Though value realization is the basis of product managers' work, but I think the quality of value discovery is what will determine our future. So we should always set aside sometime jumping out from our normal work to discover new value.

BACK COVER

Thanks

AI Product Innovation

For watching

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