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# AI Product Innovation

S I J I A H U A N G

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# DIRECTORY



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**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.**

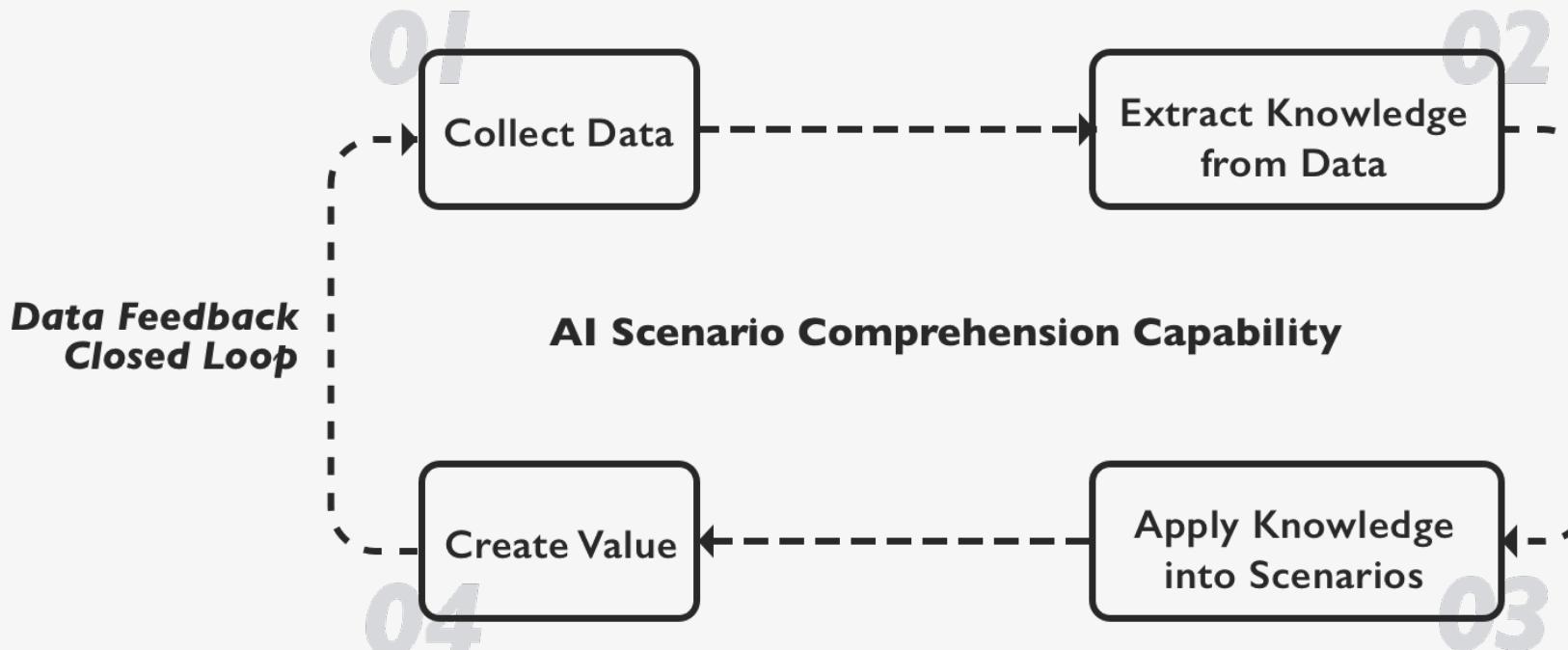
## Basis

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

## Methodology



# Core Paradigm of Creating Value with AI

**01. Collect Data**

=> What data to collect? How to collect large amounts of data?

**03. Apply Knowledge into Scenarios**

=> How to define perception for different users in different scenarios?

**02. Extract Knowledge from Data**

=> How to extract value from data? What features to extract?

**04. Create Value**

=> How to create business and social value?

**Infrastructure (AI + IOT)**

Software

Hardware

Algorithm

Cloud

## 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 applying this 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.

**Algorithm**

=> What algorithms to choose? How to set benchmarks? How to test effects?

**Software & Hardware**

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





## 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.

## Traditional Retailers 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.

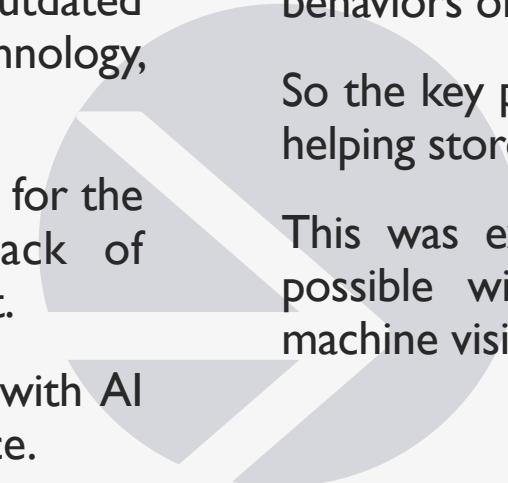
Our goal is to empower offline retail stores with AI technology, improving their business performance.

## AI lightens the 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.

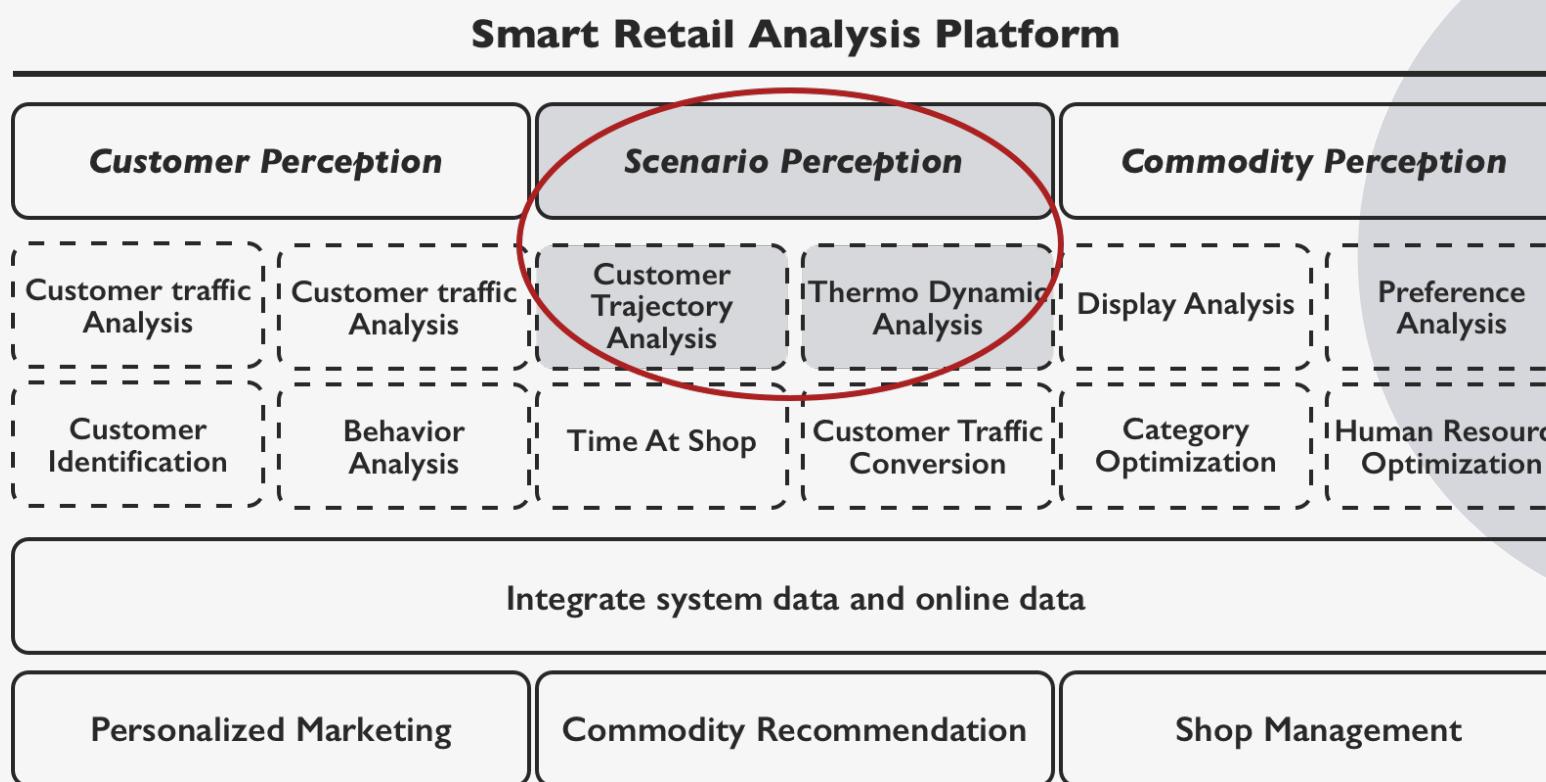


## Conceive the Product

### *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.





## 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

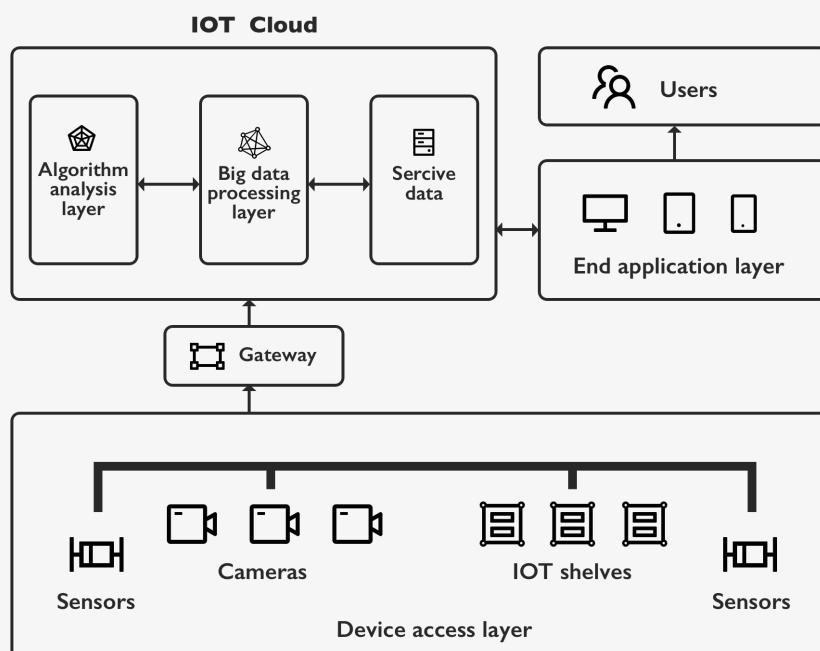
=> Realizes real-time data processing and offline mining and analysis.

##### Service Center Layer

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

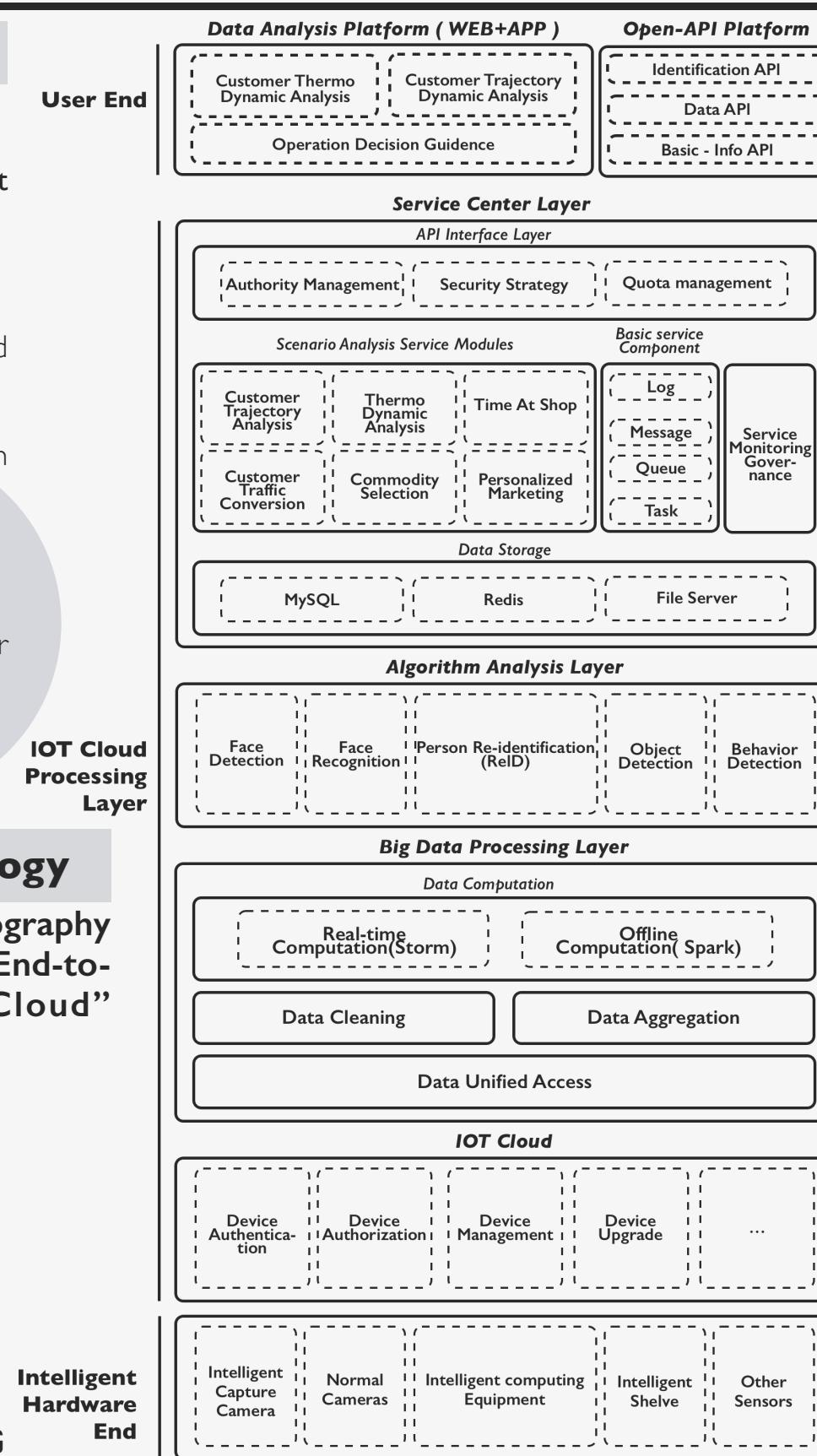
#### 03. User End

=> Provides retailers with IOT data analysis service system.



### Network Topology

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





## Interactive data dashboard

### 01. Dynamic Charts

#### Customer traffic thermo dynamic chart

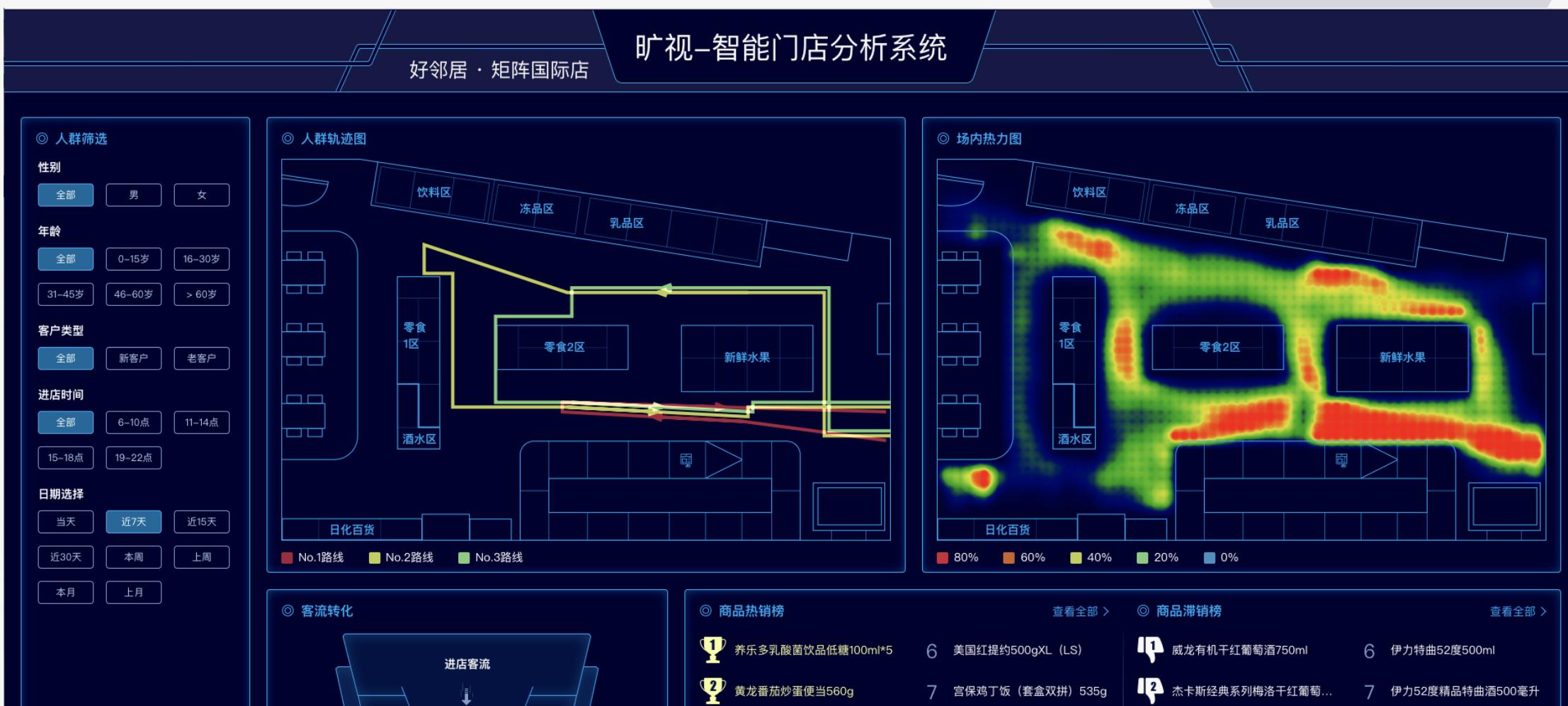
=> Visualize the distribution of customer traffic in each areas in real time, using color shades to distinguish thermo intensity, namely the distribution concentration.

#### Customer traffic trajectory dynamic chart

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

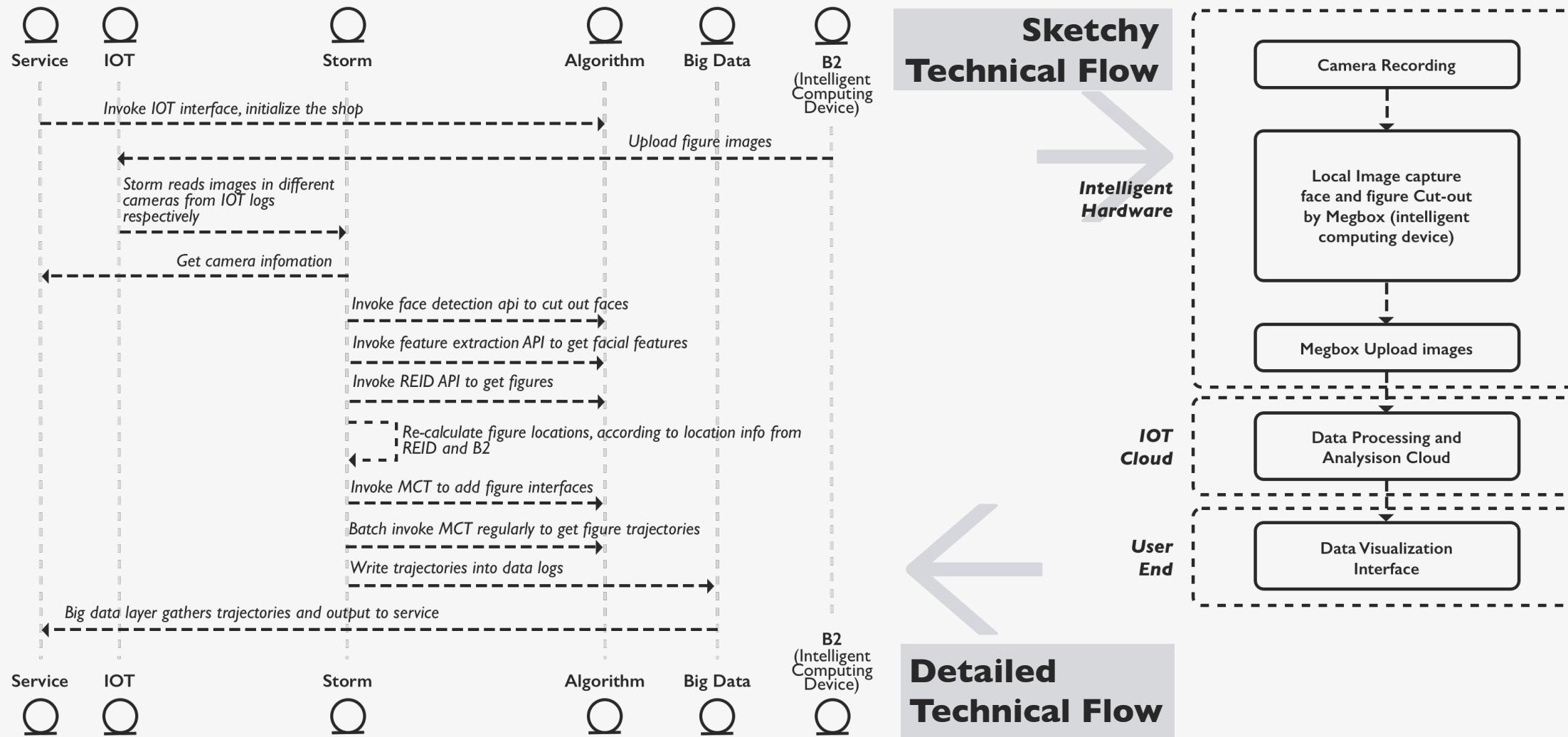
### 02. Interactive Customer Filters

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



## Design the Technical Scheme

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



## 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

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## 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.

	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

## Define Technical Indicators

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



# **02** Value and Key Results Key Insights

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Smart Retail Solution

## Value and Key Results



### **I. 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%  
Daily consultation increased by 130%

## 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.



SIJIA HUANG

# 03 AI Customer Service Chatbot

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## 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.

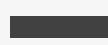
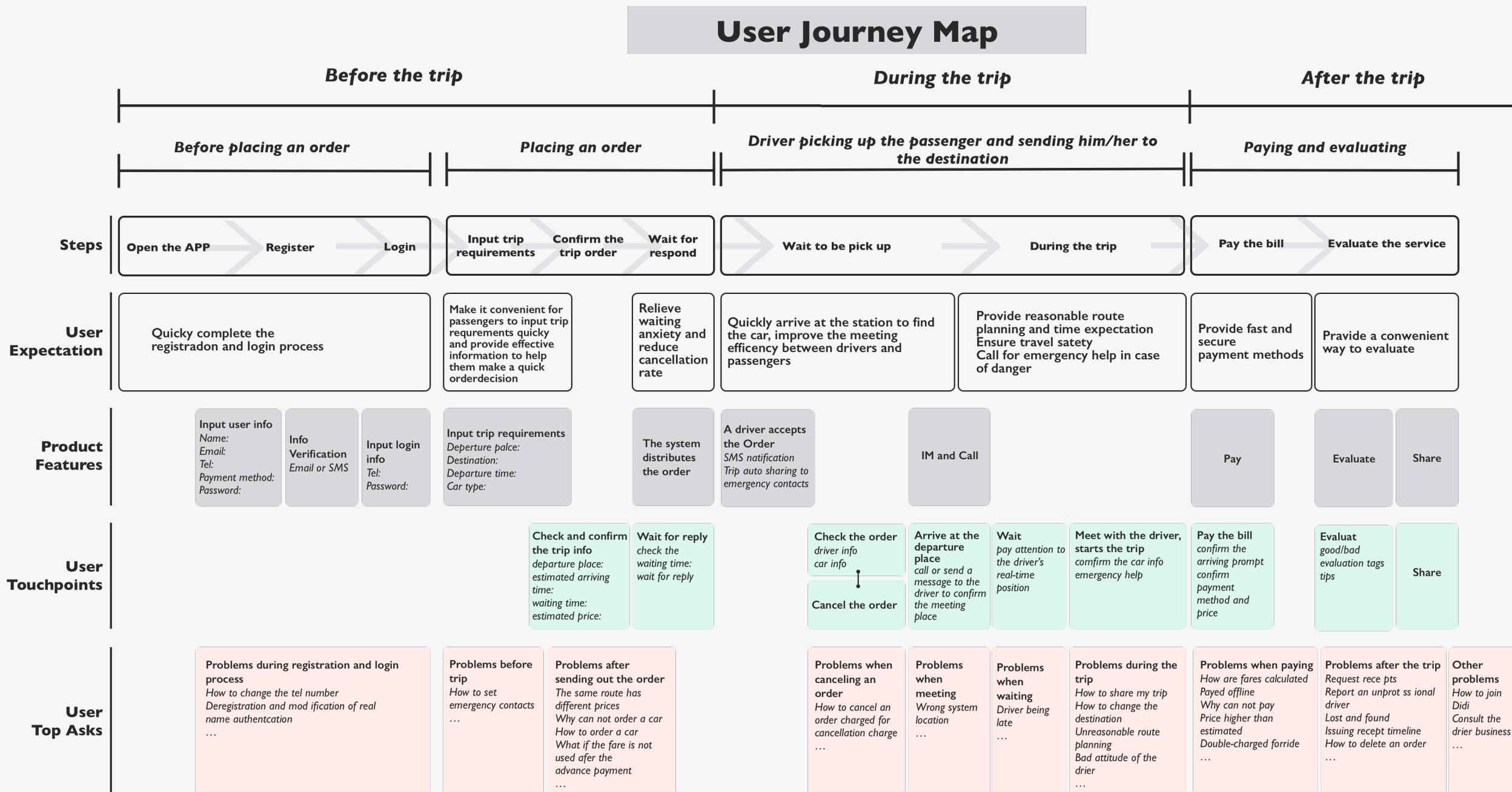


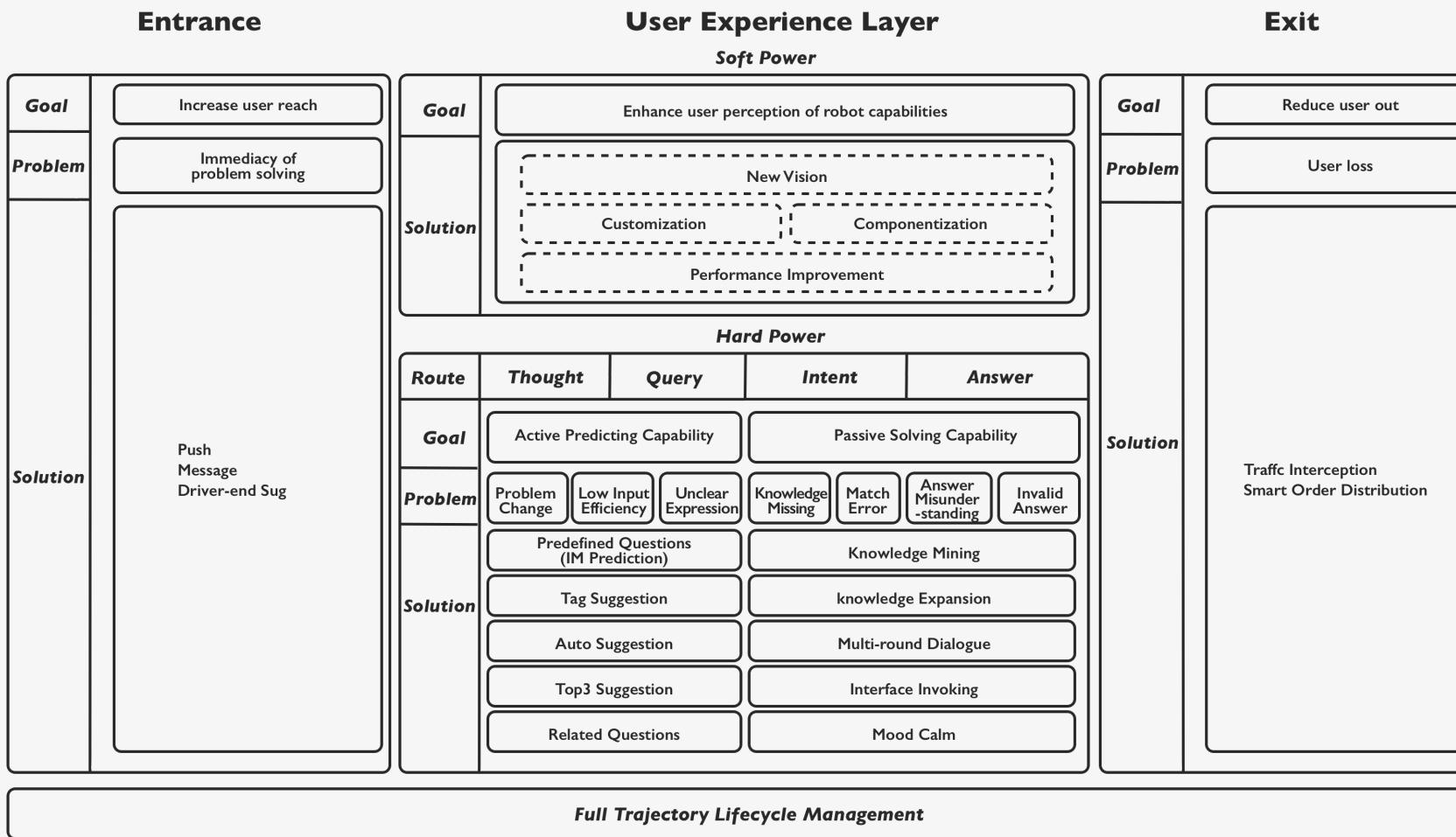
## User Research

### 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.





## Abstract the User Route

The user route in using the bot



## 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.

## Construct the Product Architecture

### 01. Entrance

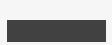
=> For users from different channels, we should help them locate problems quickly, and distribute user traffic correctly.

### 02. User Experience Layer

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

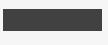
### 03. Exit

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



# 03 Innovation Process

## Design Product Schemes



**1. Predicted Questions (at customer center)**  
Here provides top predicted questions, aiming to solve user problems in advance before they enter the chatbot.  
When users clicking one question, it will go to the related answer page.

**2. Predicted Questions (in bot)**  
Here provides top predicted questions. Users see it as soon as they enter the bot.  
When users clicking one tab, the bot will give out the related answer.

**3. Predicted Tags**  
Here provides some predicted questions in form of tags above the input field.  
When users clicking one tag, the bot will give out the related answer.

**4. Auto Suggestion**  
When users enter words in the input field, it will automatically recommend queries related to the words.

**5. Top3 Suggested Questions**  
When users send out a message, the bot will base on the intent comprehension result to give out top3 suggested questions, or one answer directly.

**6. Related Questions Recommendation**  
Here provides several related questions at the bottom of every answer, aiming to address other unsolved intents of users.

### 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

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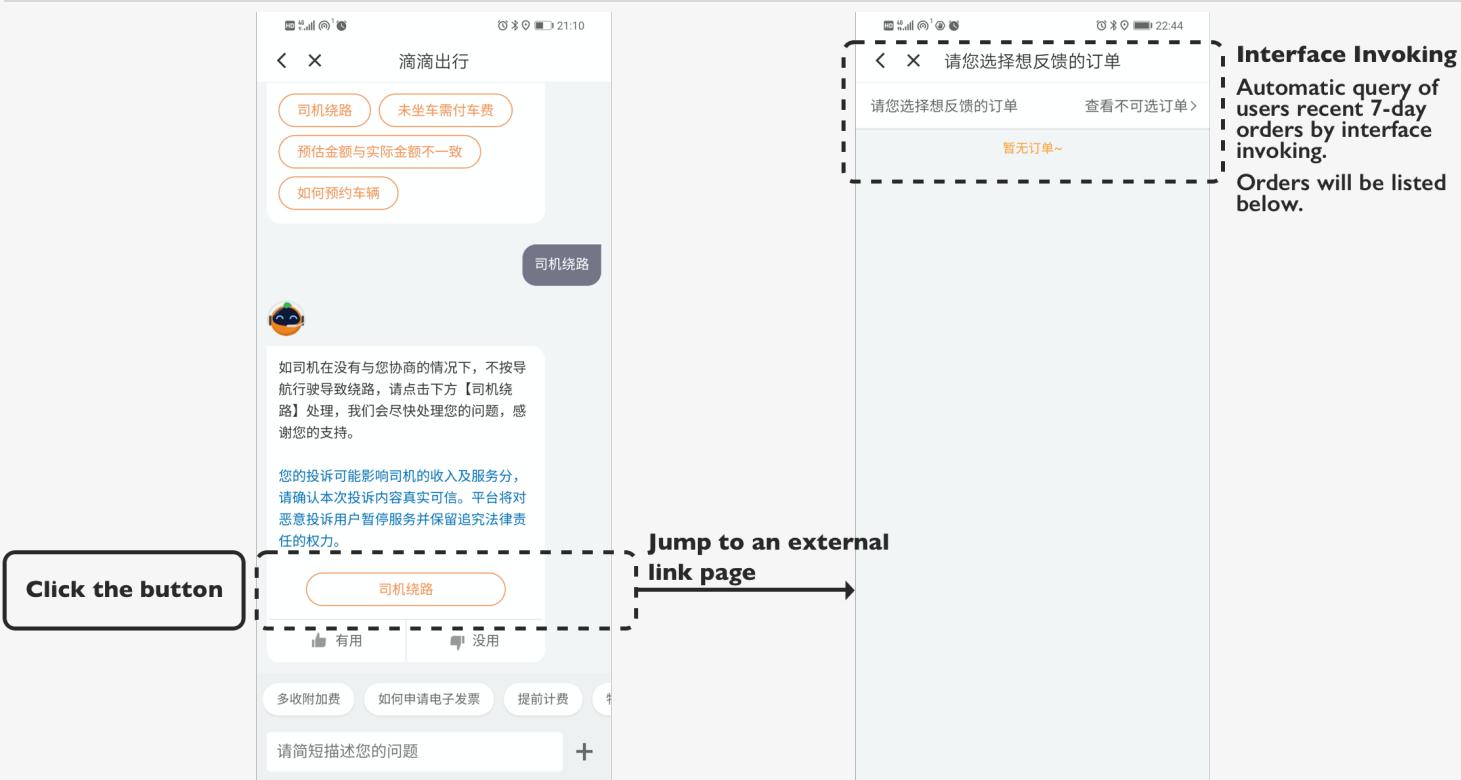
## Improve Passive Solving Capability



### 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.

## 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.

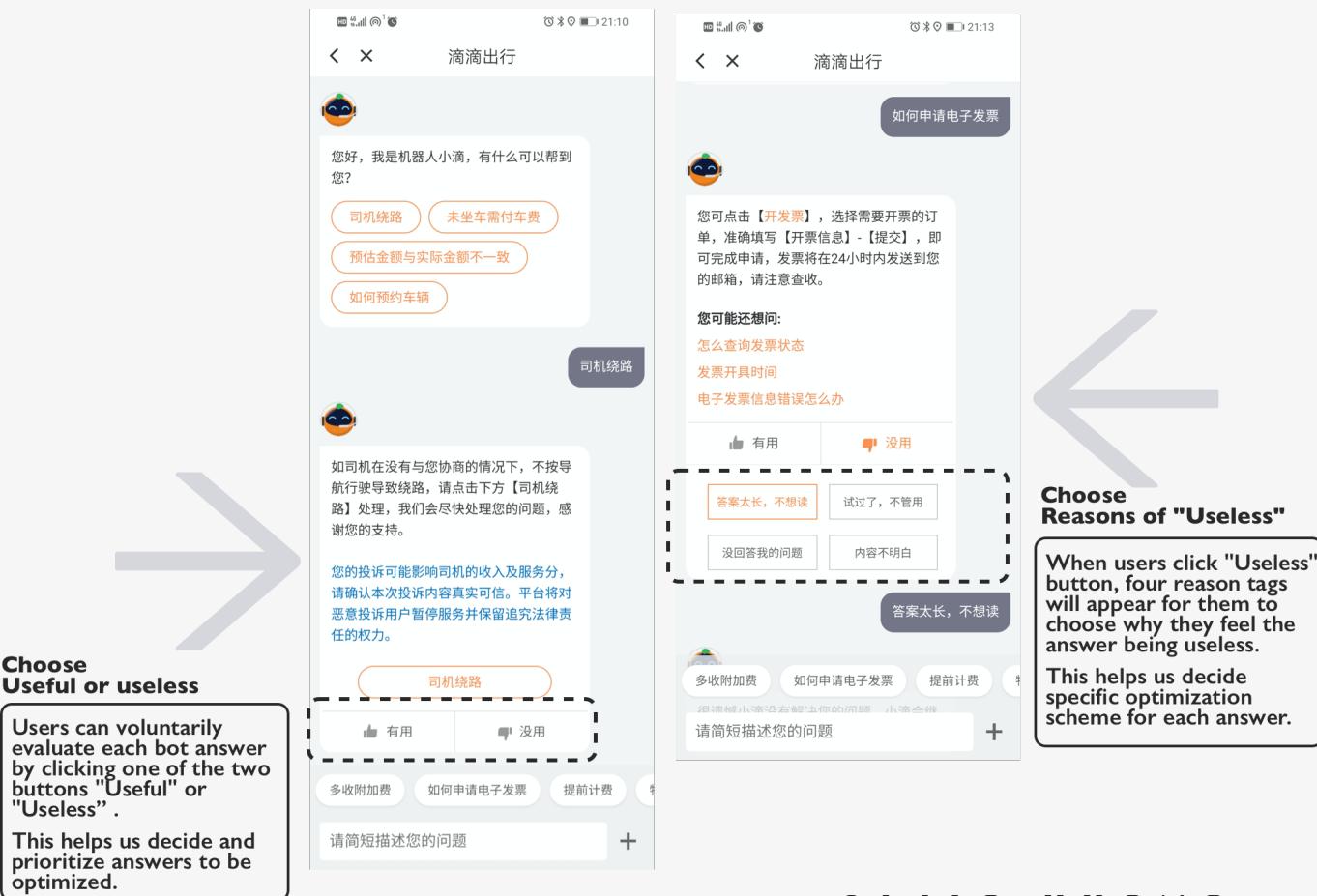
When users turn to human service for help, it means their problems are not well solved by the chatbot.

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.



### 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.

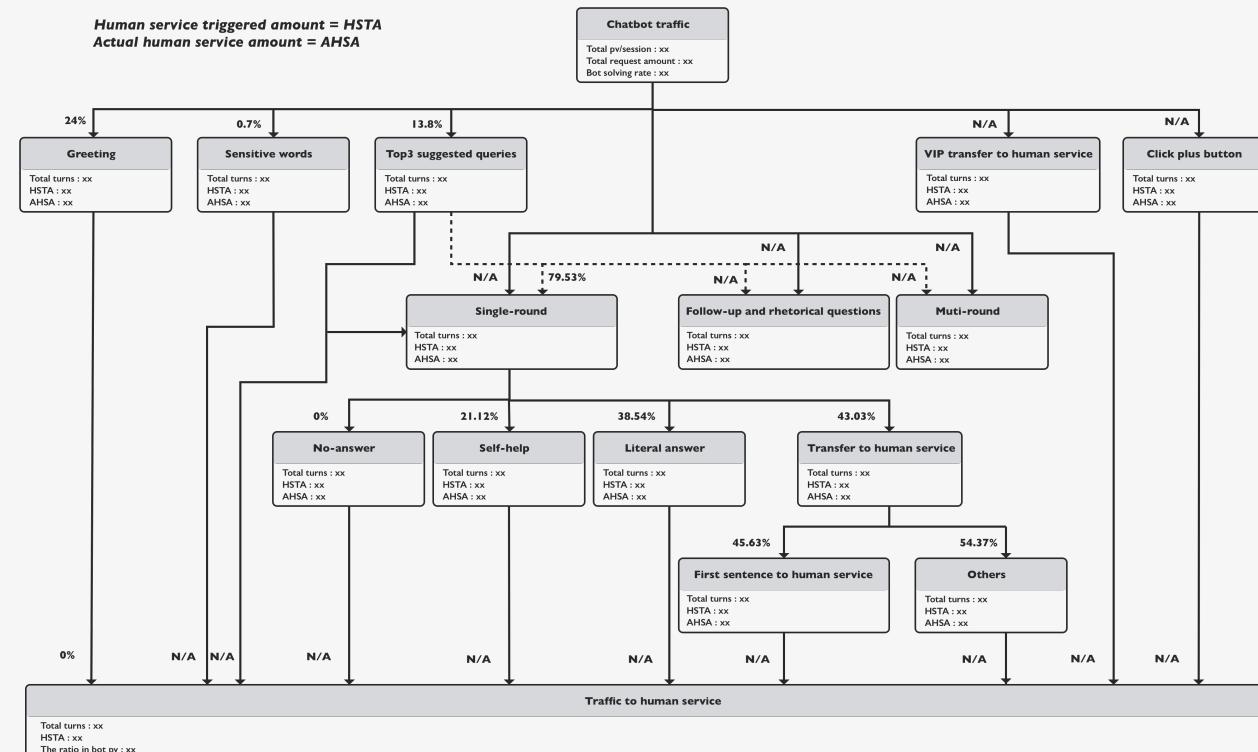
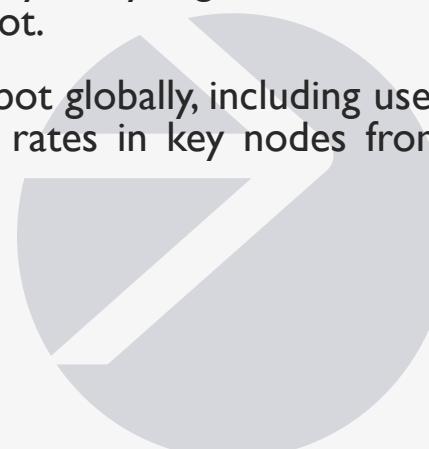
## Design Data Dashboards

### 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

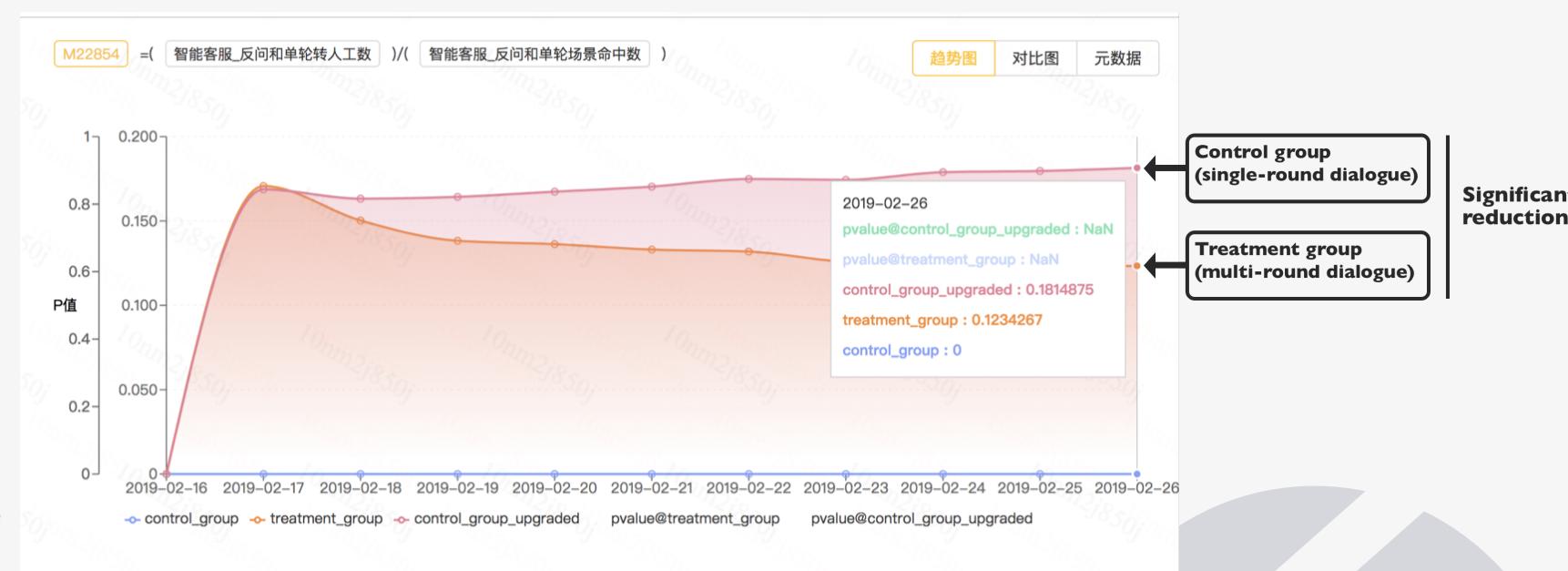
Why can not order a car?(a top unsatisfactory query)

##### 02. Tested Strategy

Rhetorical multi-round dialogue structure

##### 03. Observation Indicator

User Transfer To Human Service Rate





### Value and Key Results

#### Key Results

##### 01. Overall User Transfer To Human Service Rate

**Reduced to 28.7% (-10.3%)**

original value => actual result

39%	28.7%
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##### 02. Overall User Satisfaction Rate

**Improved to 25.8% (+5.3%)**

original value => actual result

20.5%	25.8%
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#### 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.

#### Business 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 user 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.

## 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.

## Help human customer service improve work efficiency

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.



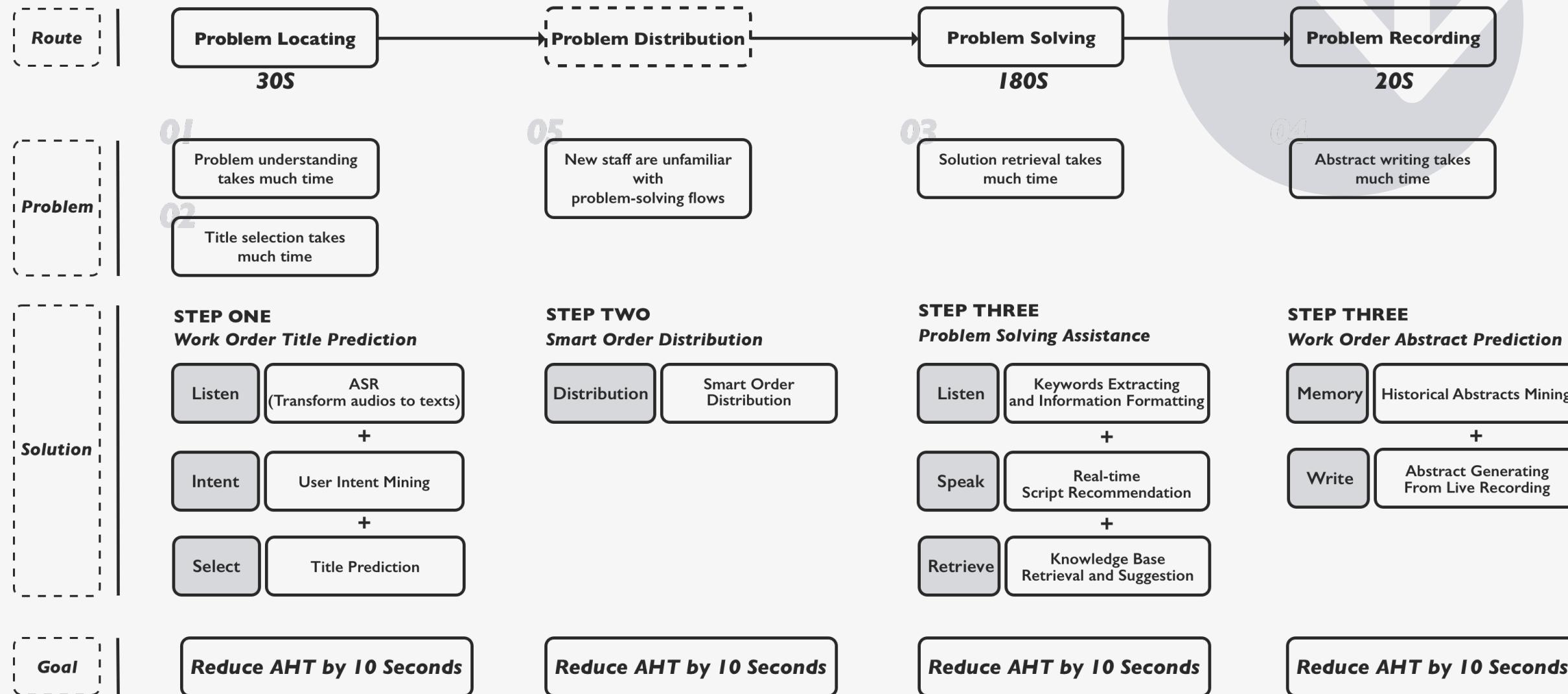


## User Research and Solution Design

### 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.





## 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

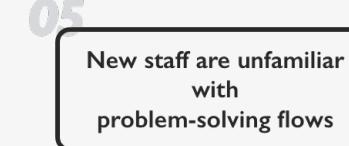
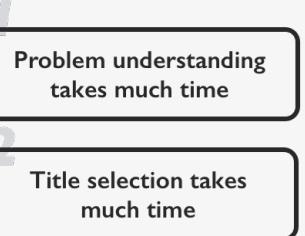
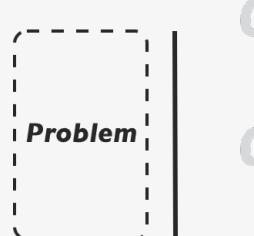
=> New staff are unfamiliar with flows and scripts of solving manifold problems.

#### 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.



## 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.

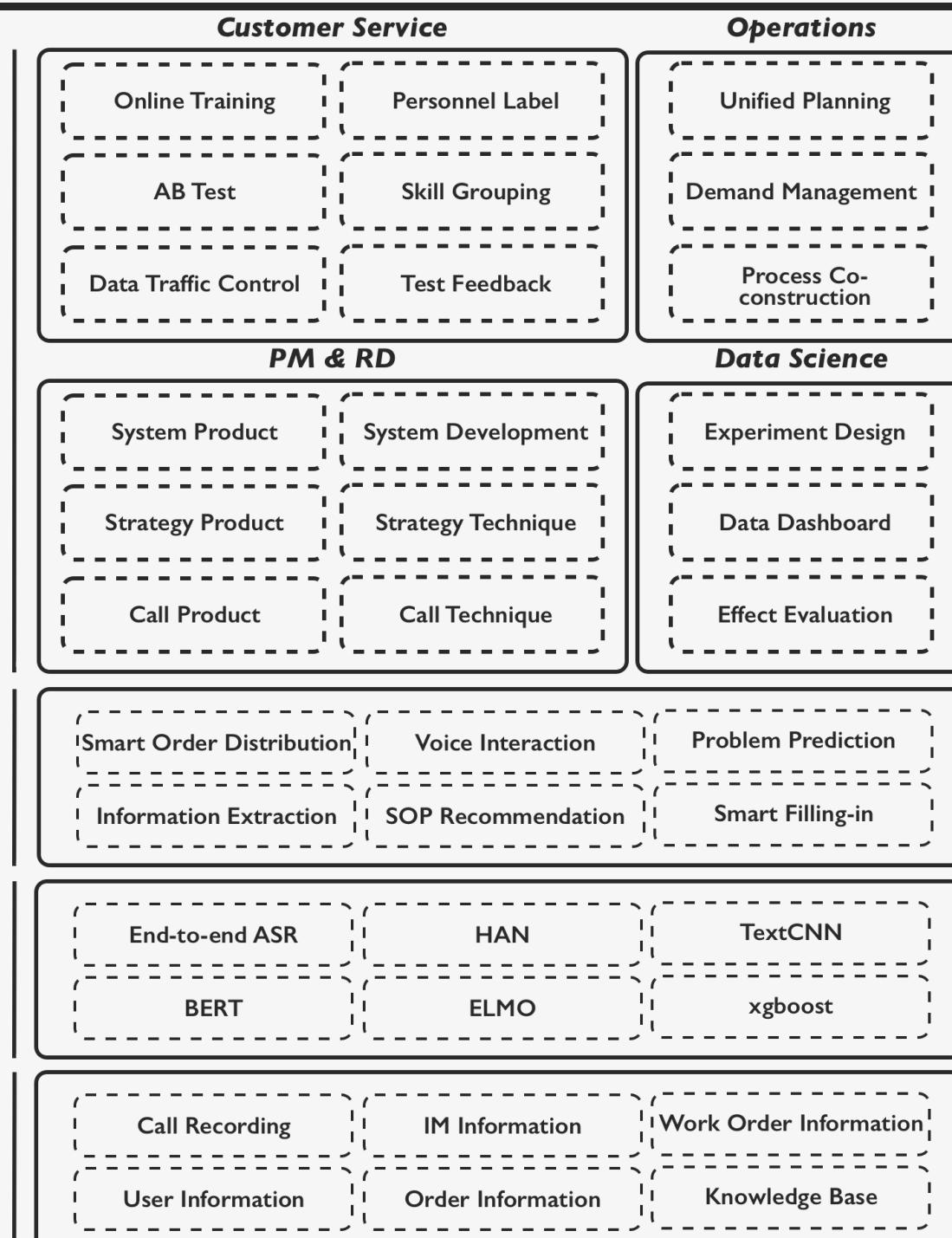
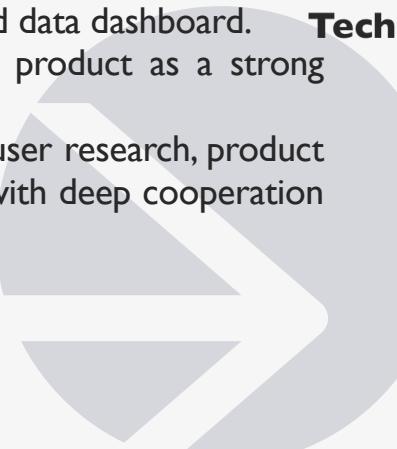
Customer Service Team: I conducted user research, product effect experiments, and user training with deep cooperation with them.

### Implementation Layer

### Application Layer

### Technique Layer

### Data Layer





## Design Product Schemes

### Title and Abstract Prediction

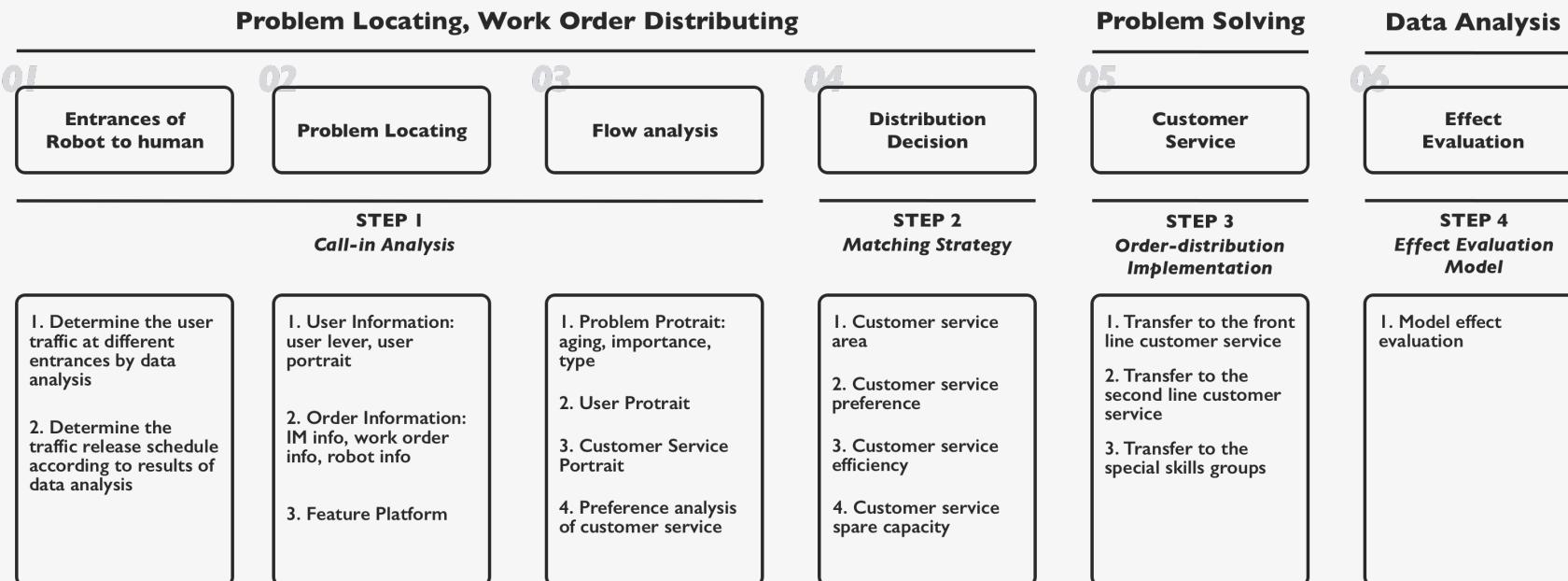
The screenshot shows a customer service application interface. On the left, there's a sidebar with icons for search, filter, and user information. The main area has tabs for '新建工单' (New Work Order), '全轨迹' (Full Trace), and '个人信息' (Personal Information). A dashed box highlights the '用户问题描述' (User Problem Description) section, which contains a summary of the user's oral expression. Another dashed box highlights 'Area 2: Title Prediction', showing three predicted titles based on the problem description. A third dashed box highlights 'Area 3: Abstract Prediction', showing sentences predicted by AI based on the title and call records. Arrows point from the callout boxes to their respective sections in the interface.

**Area 1 : User Problem Description**  
Here shows the description of user problem summarized by AI, based on his/her oral expression.

**Area 2 : Title Prediction**  
Here shows three most possible title 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



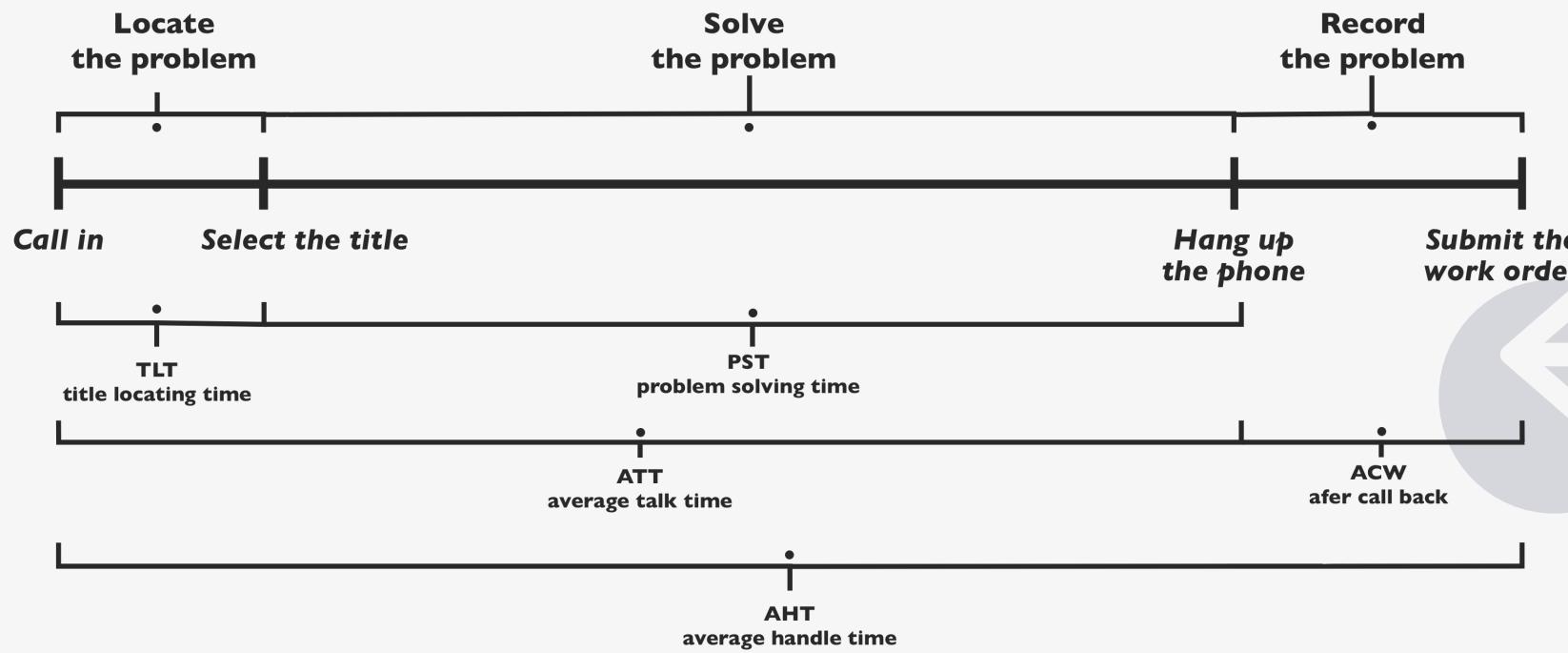
# 04 Innovation Process

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## 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.

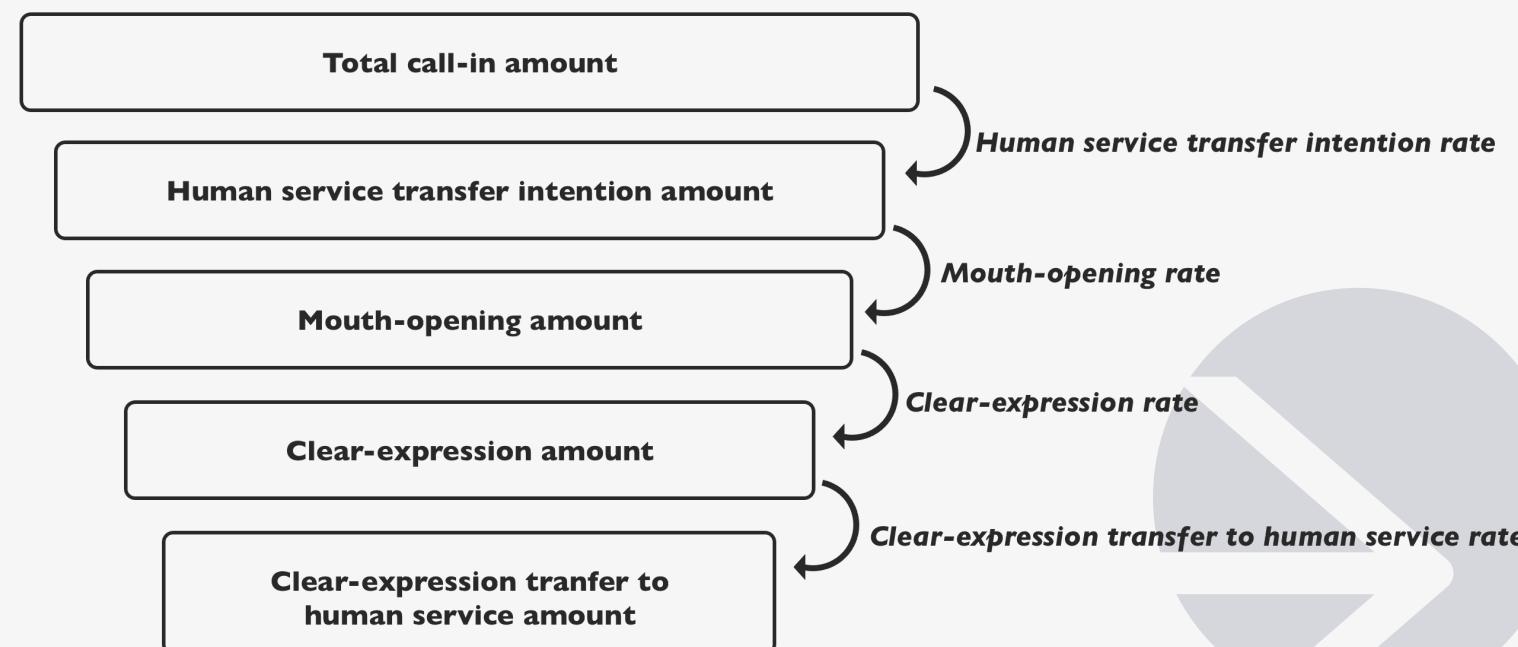
#### 02. ATT Average Talk Time

=> The average time of talking with the callers.

#### 03. ACW After Call Work

=> The average time of following up with the orders

### Voice Interaction Data Funnel



### Local Indicators

#### 01. Voice Interaction Data 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

## Value and Key Results



## Key Insights

**Know user needs through  
real research instead of  
guessing.**

**Reduced Average Handle Time  
by 42 seconds**

original value => actual result

230s

188s

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.



# 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 censoring 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.





## 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%

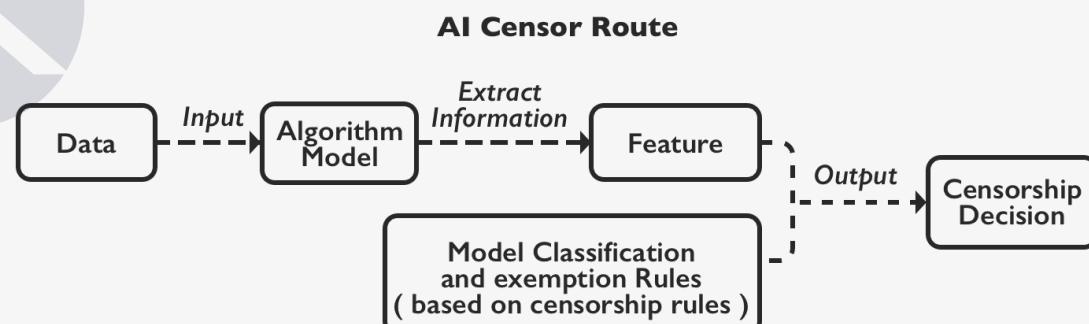
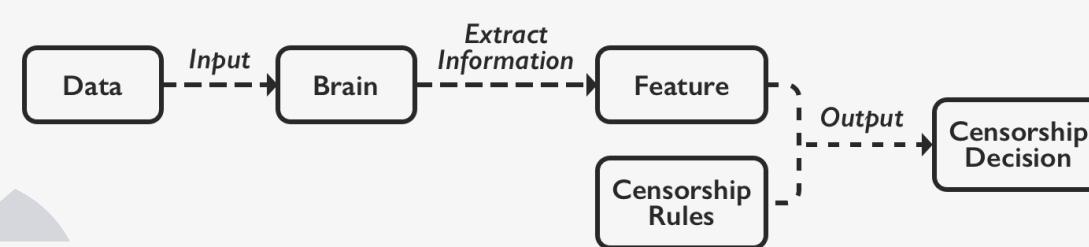
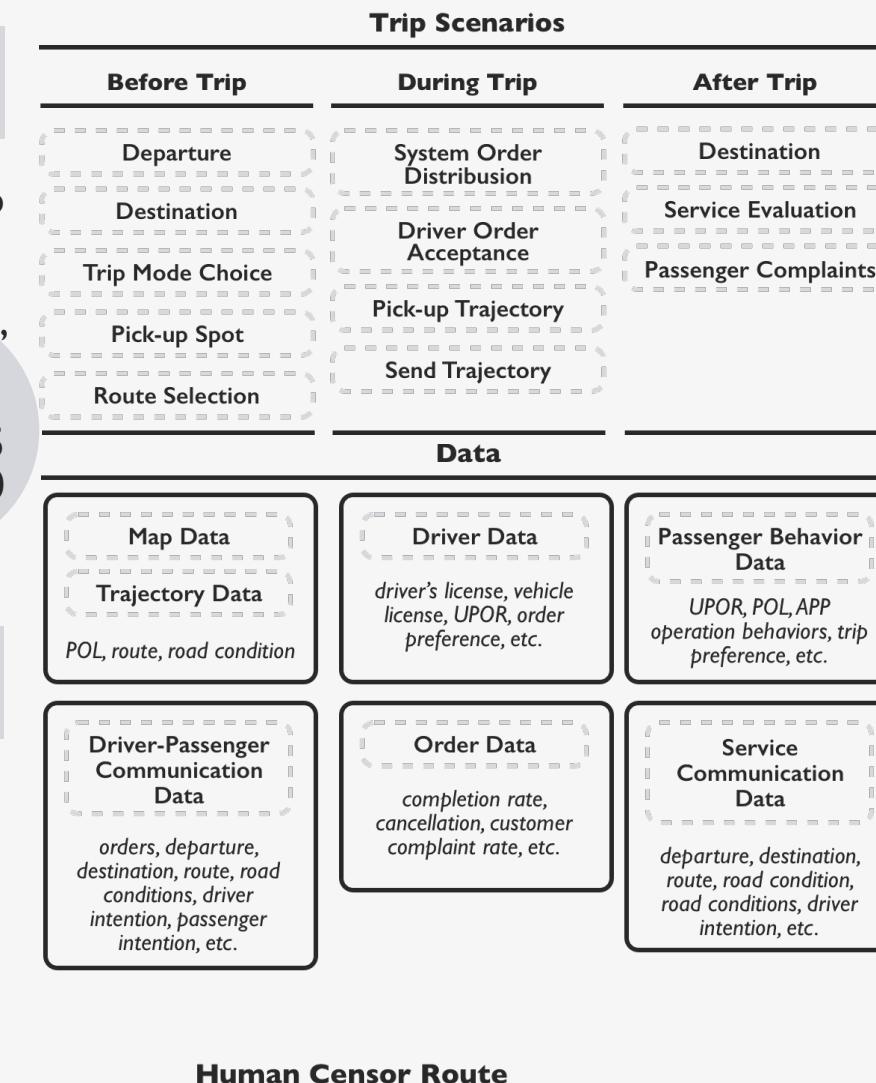
## Abstract the Route

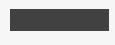
How human and AI make censor decisions?

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?





## 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

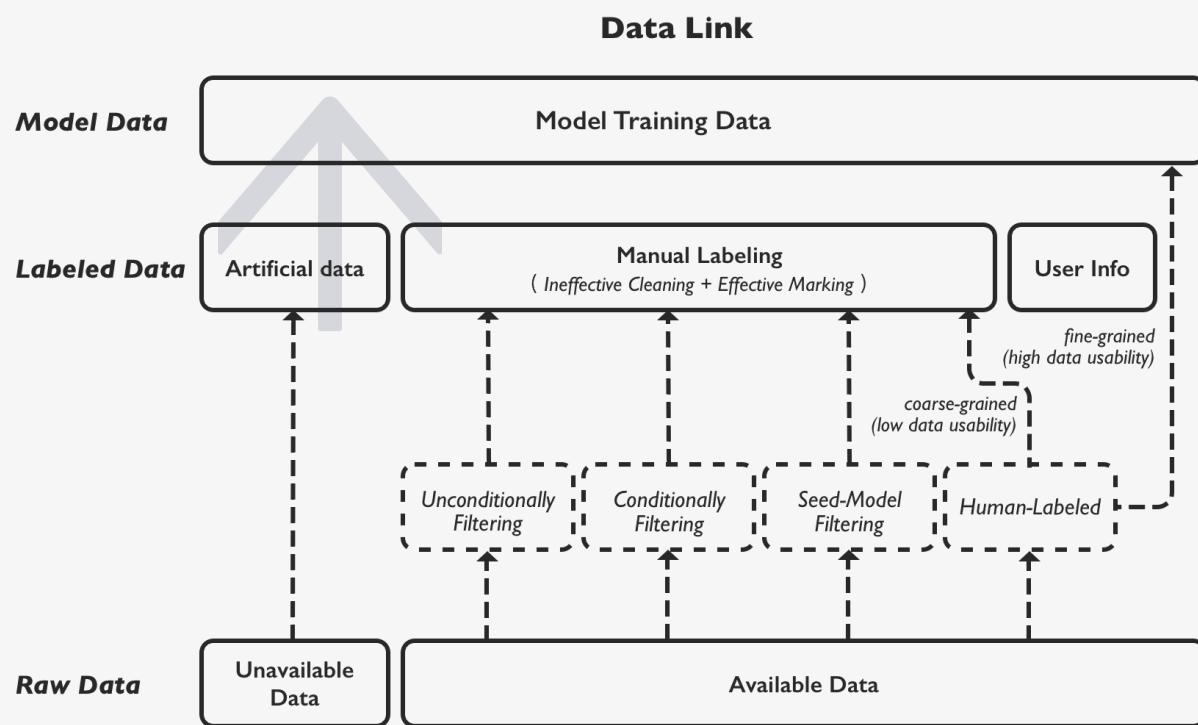
=> An open-AI platform to carry our AI capability and provide API invocation services for demanders.

#### 04. Application Layer

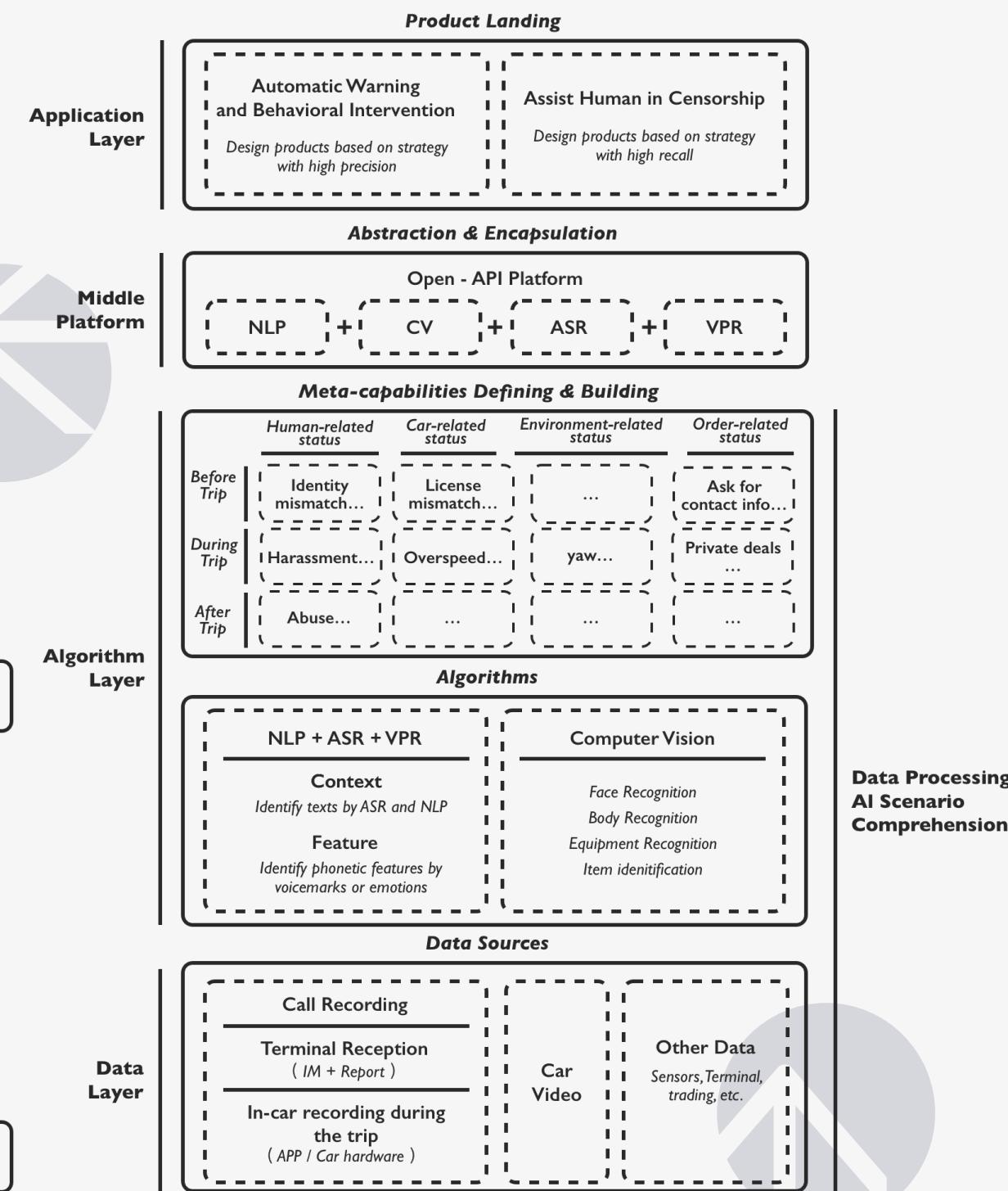
=> The application modes of our product in solving problems.

### Clarify the Data Link

How data flows from bottom to



### AI Censor System - Product Architecture





## 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.

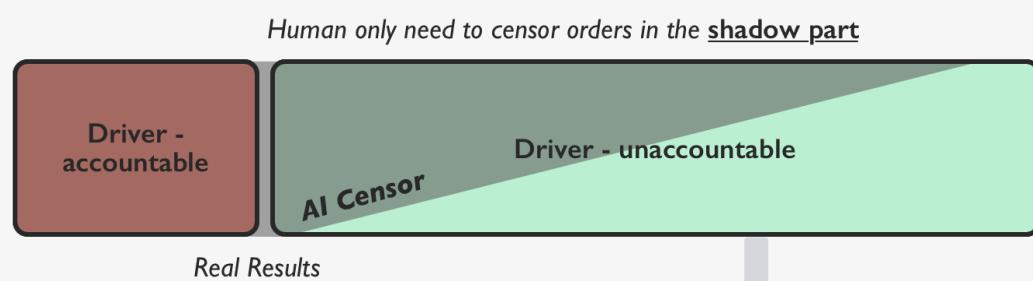
e.g. A driver's smoking motion, which might last only 1 second, usually requires human reviewing the whole video from beginning to end to capture it.

## Design effective Handles

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

*Handle 1*

### Order Interception



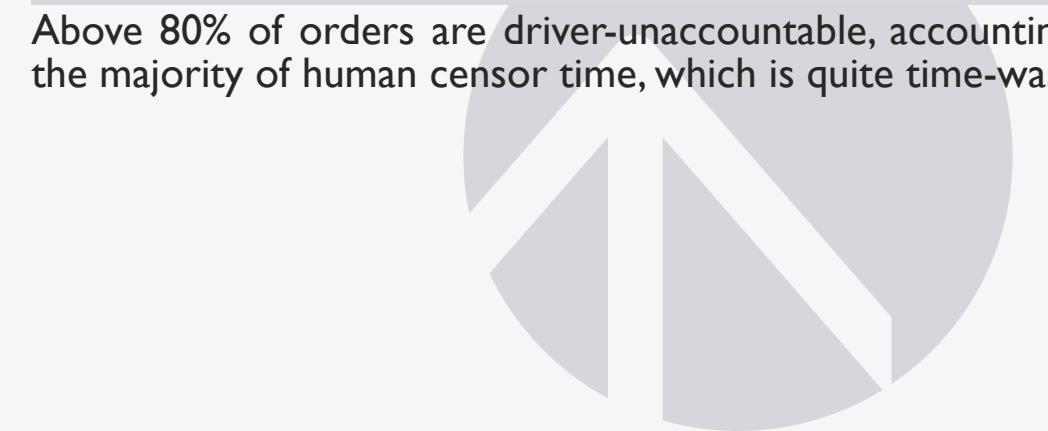
01. Purpose => Reduce human censor order amount

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

*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.



*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

## Design executable Schemes

### How to build the AI system ?

The process of building 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

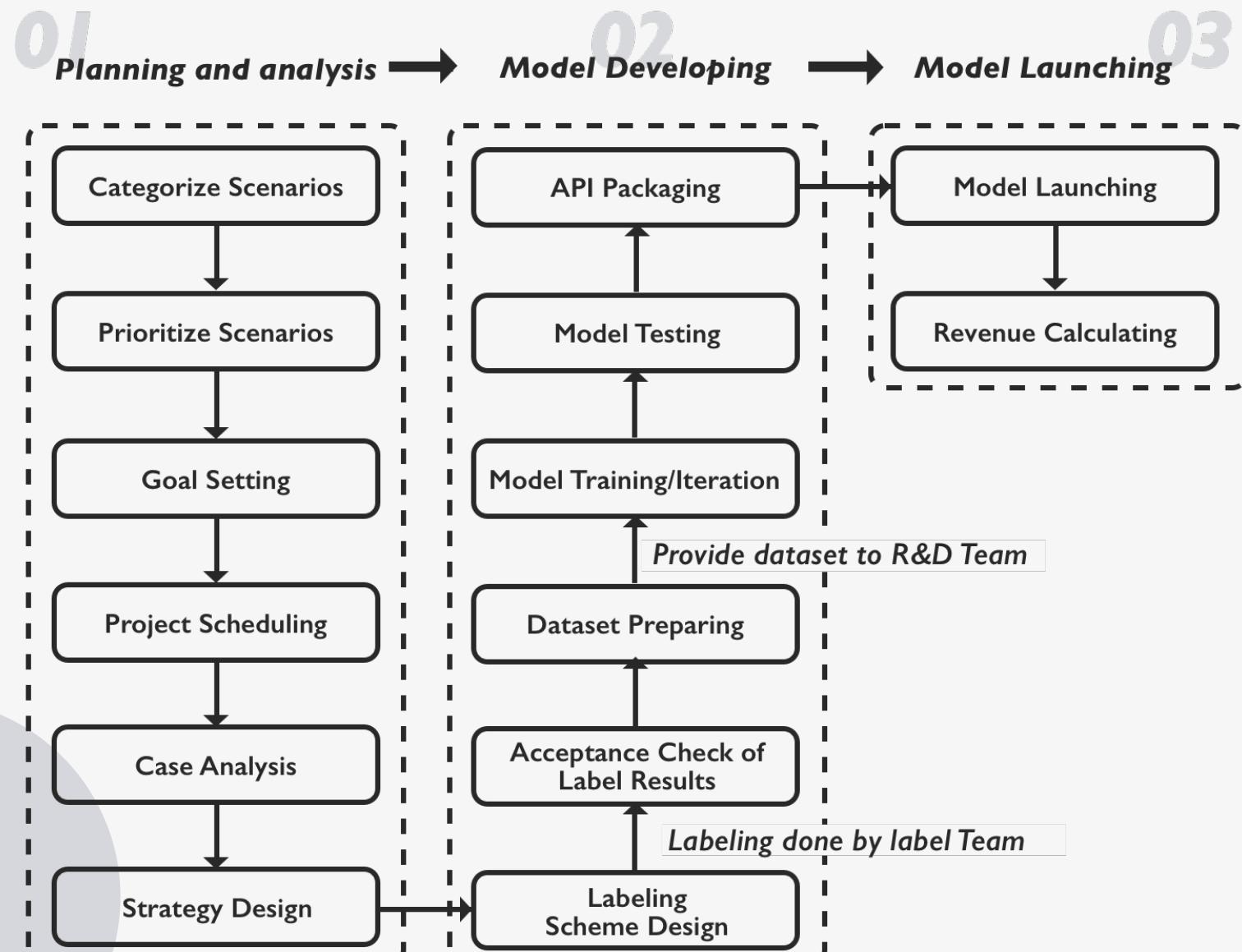
##### Model Development

=> 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.

### The process of building AI meta-capability



### 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 >>>

Category	AI Meta-capabilities	AI techniques
Safety	Driver Sex Harassment	ASR + NLP + CV
	Driver Dangerous Driving	
	Driver Playing Cellphone	
	Passenger Not Wearing Safety Belt	
	Driver Fatigue Detection	
	Driver Drunkenness Detection	
	Driver Smoking Detection	
	Body Conflict Detection	
	Driver Clothing Detection	
	Driver Insulting Passenger	
	Standard Speech and Movement	
	Cancel Responsibility Detection	
Service	Driver Raising Prices	CV
Trade		ASR + NLP

### Key Insights

#### I. 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.

# Thank You

A I   P r o d u c t   I n n o v a t i o n

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