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# Process-Oriented Data Science

BPI Challenge 2016: Customer Journey Dutch Employee Insurance Agency



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# Domain Description



## Employee Insurance Agency

8-month period from July 2015 to February 2016

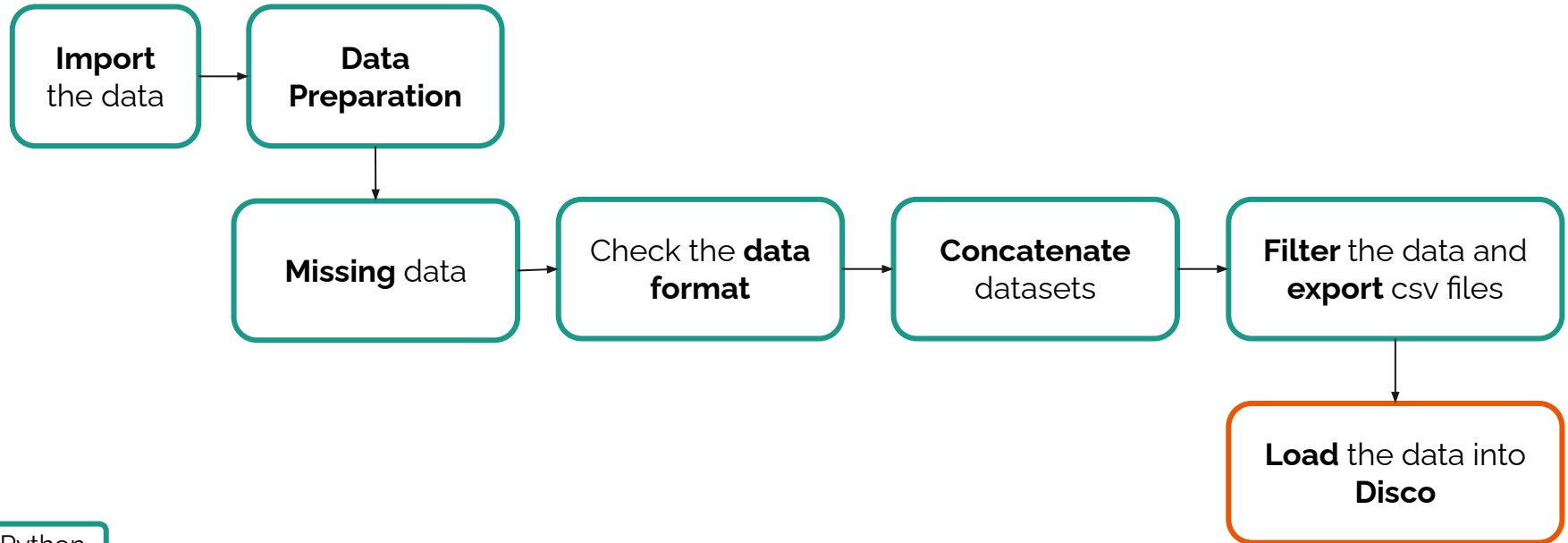
Name of the dataset	Description	Volumetry
BPI2016_Clicks_Logged_In	<b>Interaction data from registered customers</b> who have logged into the website	7,174,934
BPI2016_Complaints	Information about <b>complaints filled</b> by the customers	289
BPI2016_Werkmap_Messages	Information about <b>Werkmap messages sent</b> by customers through a digital channel	66,058
BPI2016_Questions	Information about <b>questions asked</b> by the customers to the call center	123,403

# Problem Description



1. Are there clear **distinct usage patterns of the services** to be recognized?
2. Do the **usage patterns of the website** by customers change **over time**? How does the usage change over time?
3. What are the **general insights about complaints** over time by age category and gender?
4. Which is the **behavior** of the customers **after filing the first complaint**?
5. Are there any insights regarding the **frequency of a user complaining**?

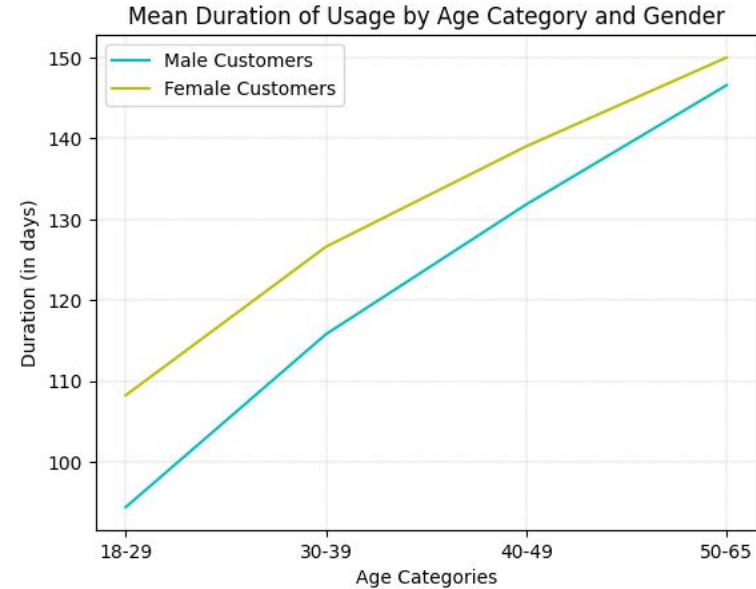
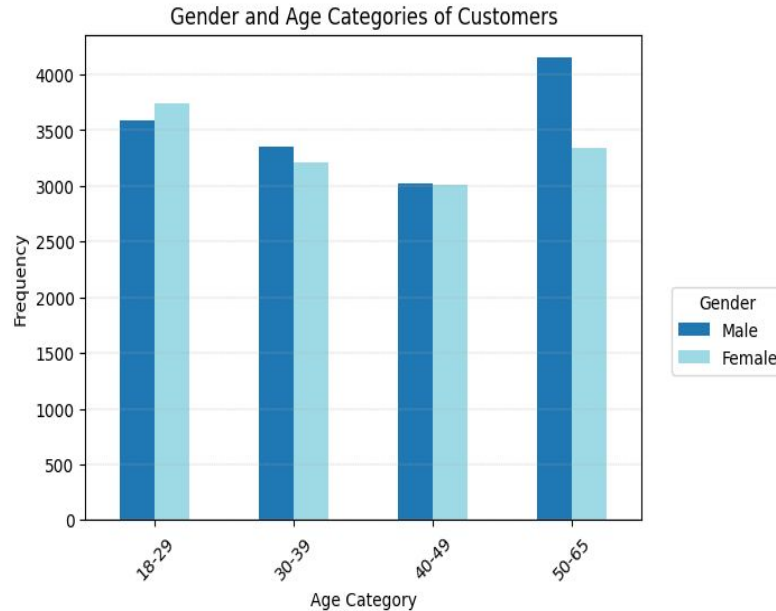
# Method Used to Solve the Problem



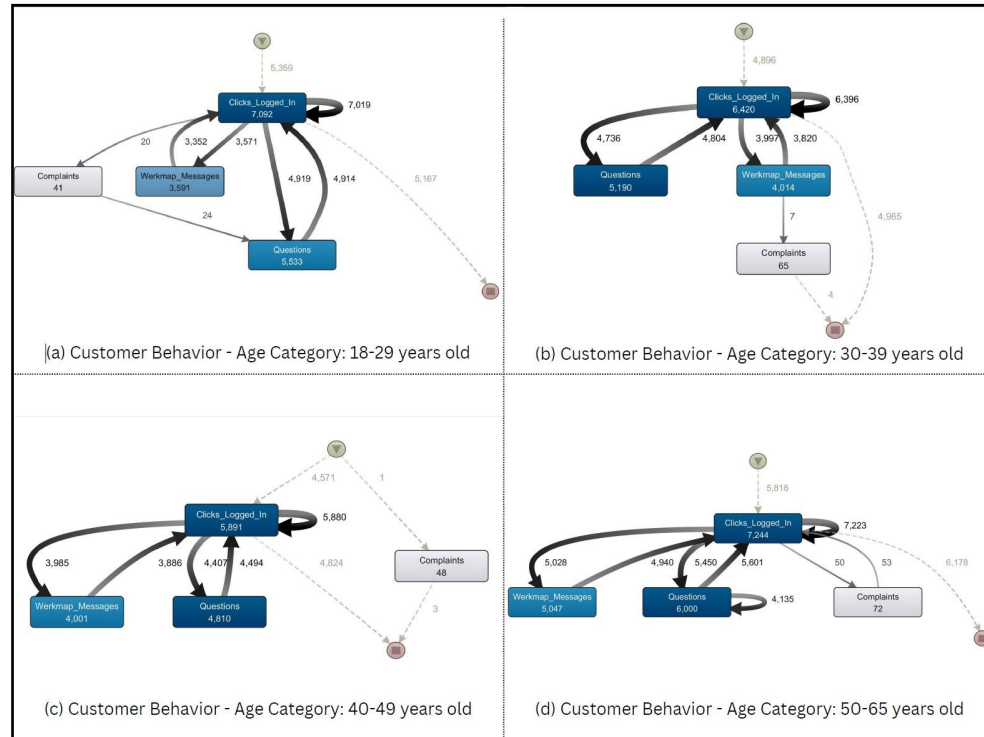
Python

Disco

# Results - Clear Distinct Usage Patterns of Services



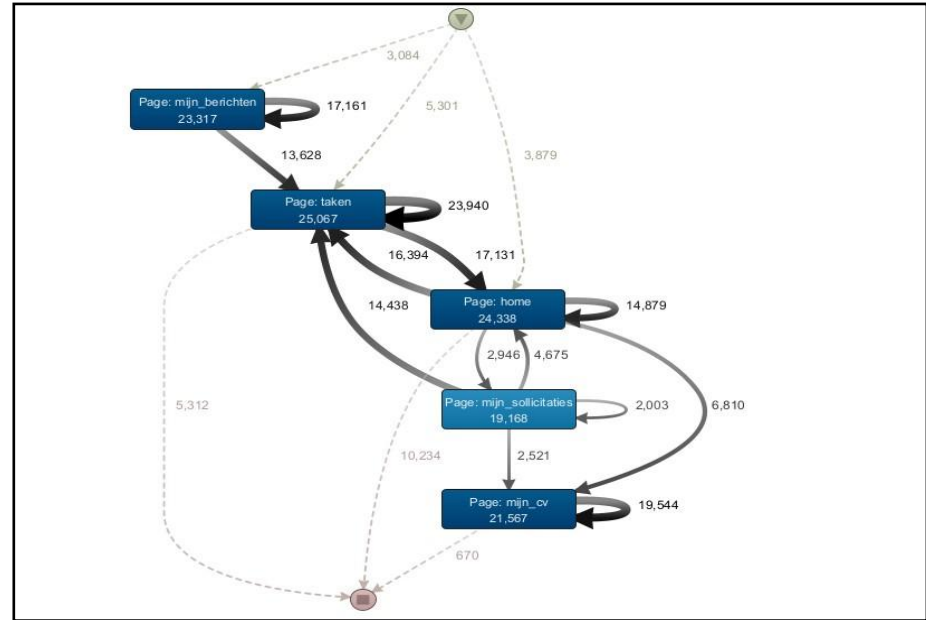
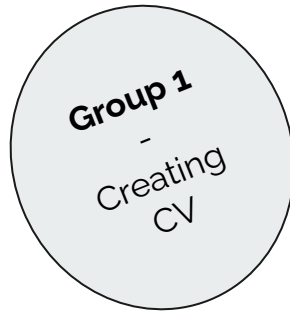
# Results - Clear Distinct Usage Patterns of Services



# Results - Website Usage Pattern Changes over Time

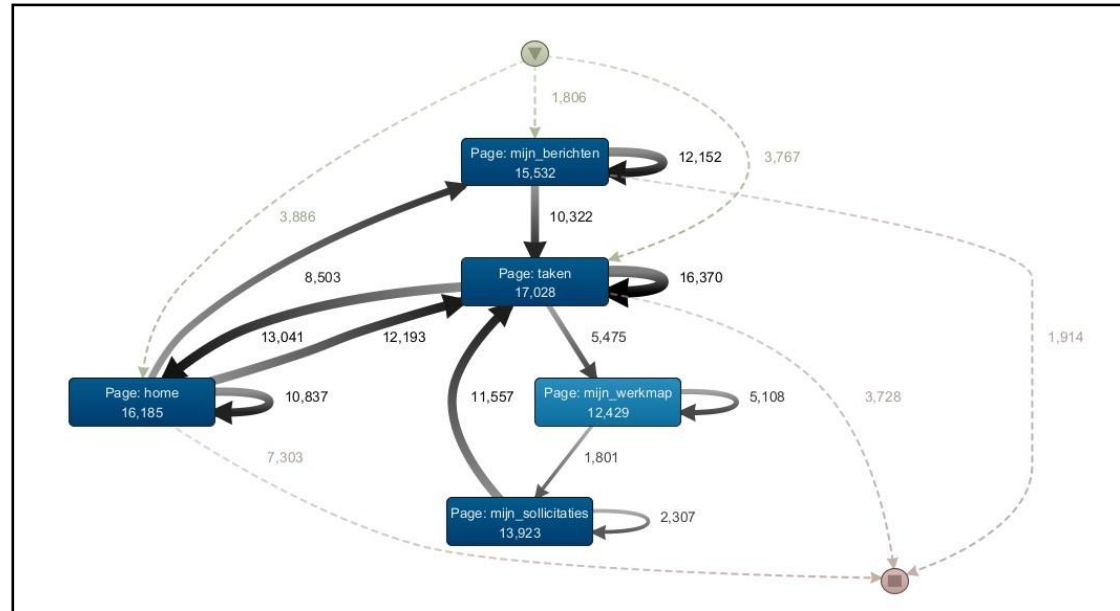
Groups Based on Session Number

- Group 1: Session# <11
- Group 2: 10 < Session# <30
- Group 3: Session# > 30



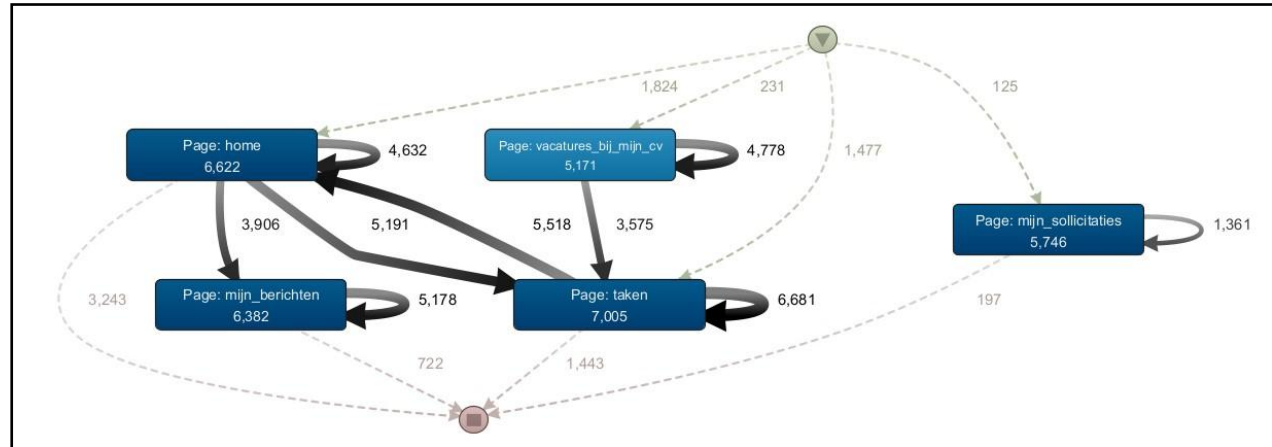


# Results - Website Usage Pattern Changes over Time

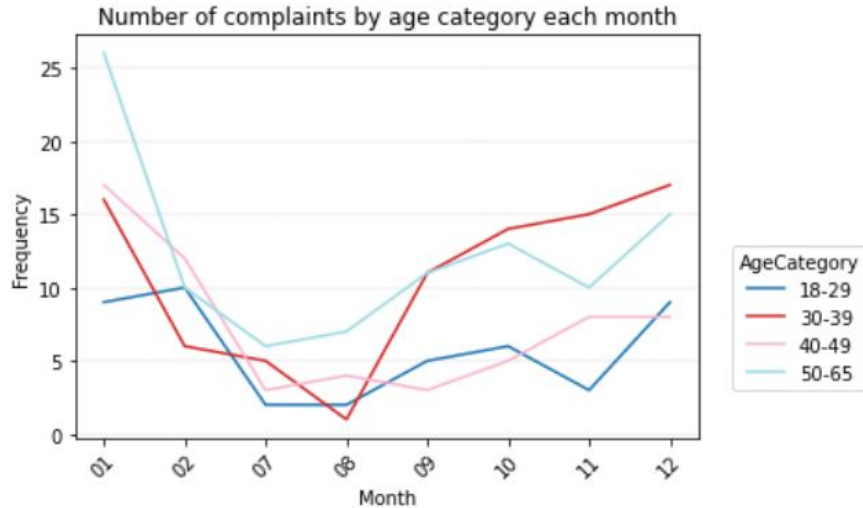


# Results - Website Usage Pattern Changes over Time

**Group 3**  
-  
Checking  
Jobs on  
my CV



# Results - General Insights About Complaints



Out of 27,412 users, **226 customers** made **one complaint or more**

**Women** are the ones **complaining the most**

**50-65 age group** is the one **complaining the most**

**Top 1 complaint:** Information incorrect / inconsistent

**Top 1 complaint in December:** Income form ww unreachable

# Results - Frequency of Complaints

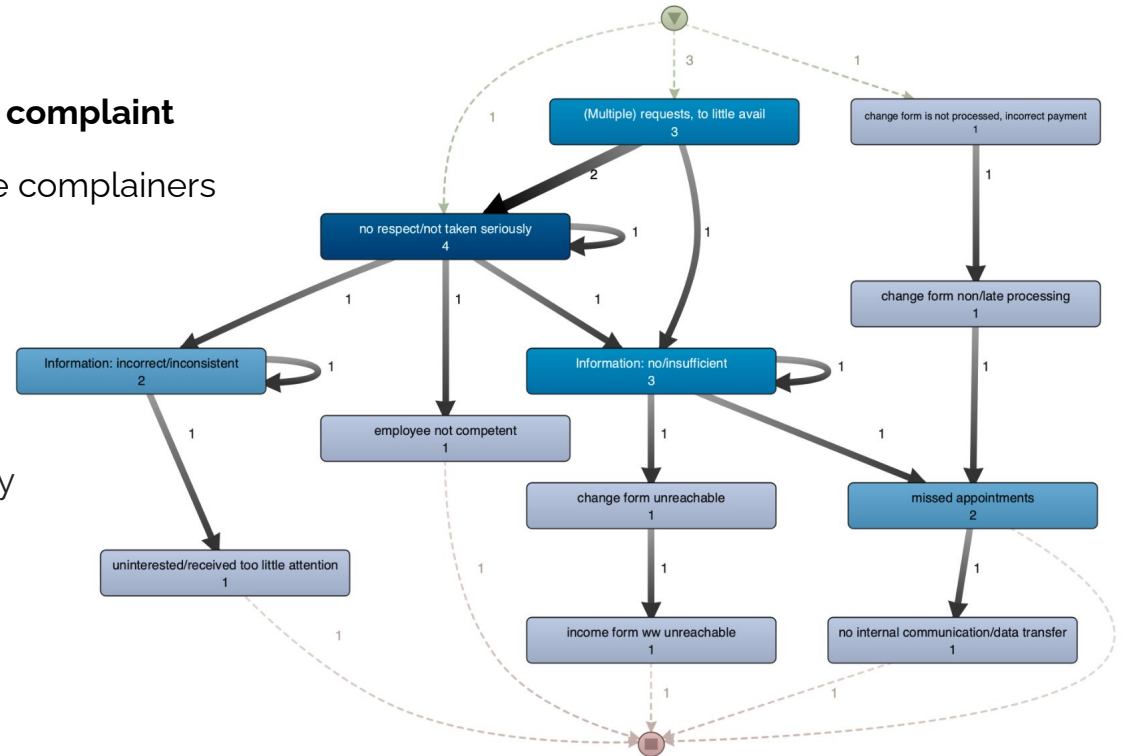
**46 customers** made **more than one complaint**

**50-65 group** is are the most multiple complainers

Majority of **women**

**Most frequent types:**

- No respect/not taken seriously
- Request, too little availability
- Information: no/insufficient



# Results - Frequency of Complaints

Identical day / Identical complaint

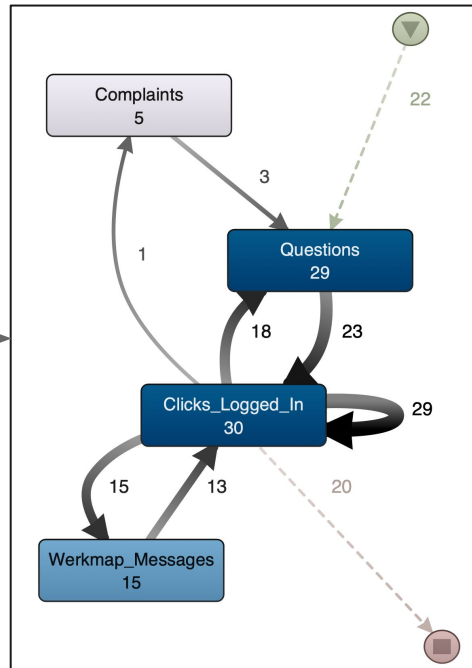
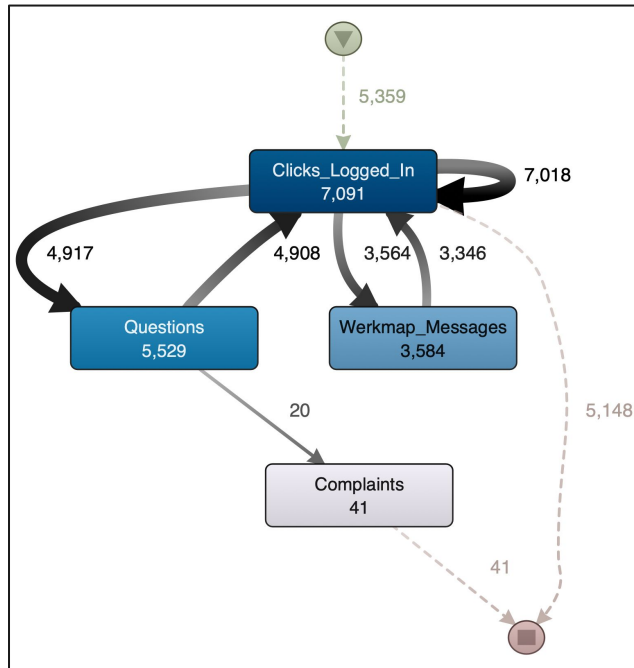
Activity	Date	Time	Source
Complain: (Multiple) requests, to little avail	09.07.2015	00:00:00	Complaints
Complain: Information: no/insufficient	09.07.2015	00:00:00	Complaints
Question: Why was my application rejected for unemployment benefits?	09.07.2015	15:53:11	Questions
Question: I received a request to submit documents, but I have a question about that.	30.09.2015	12:42:36	Questions

**Case ID 2016564**

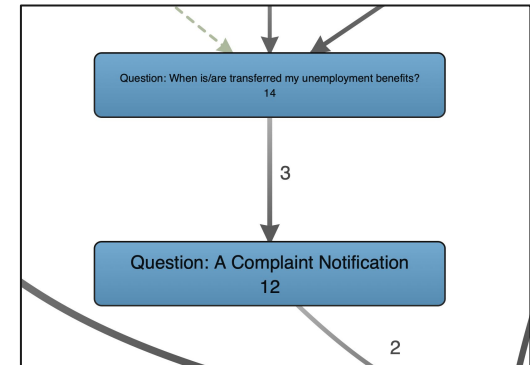
Activity	Date	Time	Source
Question: General: When should I send the form Revenue Problem?	07.01.2016	11:51:14	Questions
Complain: no respect/not taken seriously	12.01.2016	00:00:00	Complaints
Complain: no respect/not taken seriously	12.01.2016	00:00:00	Complaints

**Case ID 1881904**

# Results - Customers' Behavior after Filling the 1st Complaint

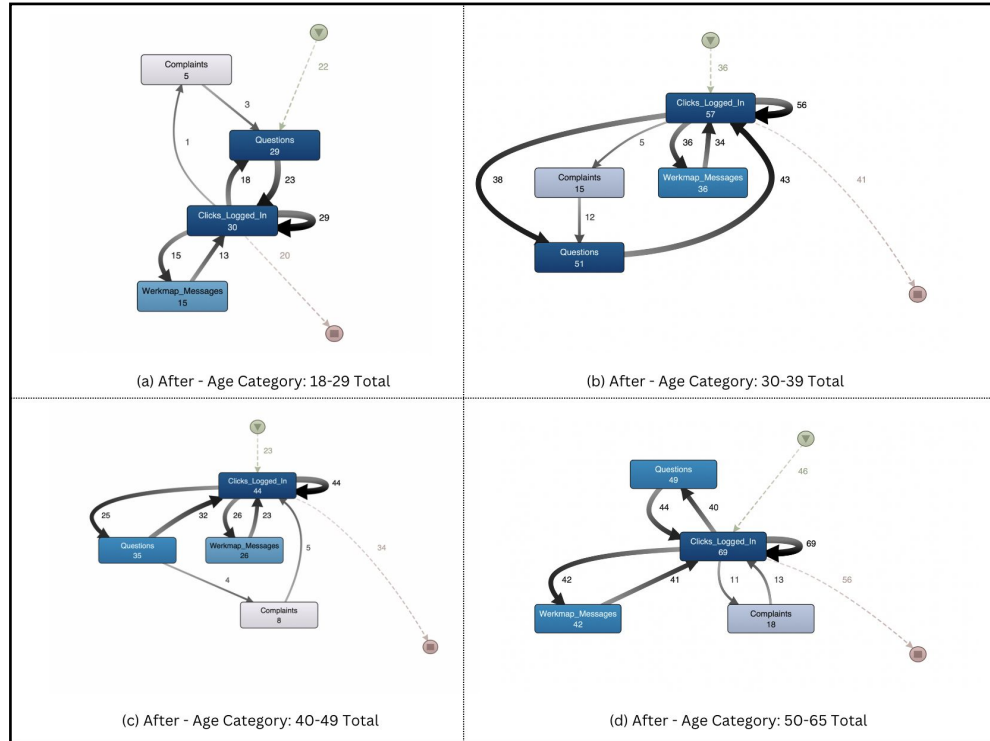


- **Change** in behavior
- Young people → **questions**
- Frequent questions



# Results - Customers' Behavior after Filling the 1st Complaint

- **Old people** → Biggest numbers
- Expensive channels



# Recommendations



- Why **young people** → **questions**
- **Friendly** services → **old people**
- **Customer service**
- **Error** message