



Understanding Customer Journeys with Process Mining in UWV

In this project, students will analyse the journey of customers in UWV (Employee Insurance Agency) is a Dutch autonomous administrative authority (ZBO) and is commissioned by the Ministry of Social Affairs and Employment (SZW) to implement employee insurances and provide labour market and data services in the Netherlands.

The Dutch employee insurances are provided for via laws such as the WW (Unemployment Insurance Act), the WIA (Work and Income according to Labour Capacity Act, which contains the IVA (Full Invalidation Benefit Regulations), WGA (Return to Work (Partially Disabled) Regulations), the Wajong (Disability Assistance Act for Handicapped Young Persons), the WAO (Invalidity Insurance Act), the WAZ (Self-employed Persons Disability Benefits Act), the Wazo (Work and Care Act) and the Sickness Benefits Act.

The importance of analysing the Customer Journey

To get more competitive advantage business and IT leaders see the customer experience as a sustainable source of competitive advantage so that the customer experience will be the new competitive battlefield. Digitalization changed the playing field between customers and service providers dramatically and created more customer power. On the one hand customers can easily compare companies and their services, place orders in two clicks and get delivery on the doorstep. If they are not satisfied they can use social media to enforce their demands. On the other hand, customers are more and more part of the service delivery process itself and more demanding how the delivery process will take place. Service providers must become proactive and lead rather than follow the customers (digital) journey. The behaviour and the characterization of the customer become more important.

Service providers can use new technologies and processes in making a personalized customer journey with contextual interaction based on where the customer is, in her or his journey. Hereby customers will stay because they benefit from the journey itself. The interaction process between customer and company has increased in complexity due to the ability to interact via different channels and the influence the customer has in the service delivery process. This increased complexity has limited the capability to improve the service delivery process by analysis of the customer satisfaction data in combination with the service delivery process performance data. Therefore, more refined process analysis techniques are needed to improve the customer interaction process of the service delivery process.

Business Questions

UWV is interested in improving the customer journey. The overall aim of UWV is to assist customers in finding a suitable job within the required time frame and to assist their customers in the process of finding one.

To assist people in this process, the “Werkmap” (workfolder) is an instrument used to track that customers' legal obligations, e.g. do they apply for enough jobs etc. The site www.werk.nl collects open positions and allows customers to find suitable jobs. Customers can log into the site (but don't have to) and they can find positions as well as answers to frequently asked questions or messages from UWV. If a customer cannot find the answer s/he is looking for on the site, s/he can contact UWV through the contact center (by phone) and occasionally, a customer will file a complaint.

Of course, the site is the cheapest channel for UWV to connect with their customers, but it is also the fastest way for customers to find answers. Next, the werkmap messages, the call center questions and finally the complaints are more expensive and slower channels of contact. One of the challenges for UWV is therefore to answer customers' questions through the cheapest and fastest channel.

UWV is interested in the way both the site www.werk.nl and the Werkmap are used. Any insights into typical usage patterns across the various channels are therefore interesting, but there are some specific questions:

1. Are there clear distinct usage patterns of the website to be recognized? In particular, insights into the way various customer demographics use the website and the Werkmap pages of the website are of interest.
2. Do the usage patterns of the website by customers change over time? Do customers visit different pages when they start using the website versus when they have been using the website for some time? How does the usage change over time?
3. When is there a transition from the website to a more expensive channel, such as sending a Werkmap message, contacting the call center or filing a complaint? Is there a way to predict and possibly prevent these transitions?
4. Does the behavior of the customers change after they have send a Werkmap message, made a phone call or filed a complaint? Are customers more likely to use these channels again after they have used them for the first time? What is the customer behavior on the site after customers have been in contact through the Werkmap or by phone?
5. Is there any specific customer behavior that directly leads to complaints?

Description of the UWV data-set

The data in this collection pertains to a subset of the customers who contacted UWV, which – as mentioned - is looking for insights into their customers' journeys. The data is focused on customers in the WW (unemployment benefits) process.

Data has been collected from several different sources, namely:

1. Clickdata from the customer specific part of the site www.werk.nl when customers have logged in;
2. Werkmap Message data, showing when customers contacted the UWV through a digital channel (e.g. through the customer-support popup in the www.werk.nl website);
3. Call data from the call center, showing when customers contacted the call center by phone, and
4. Complaint data showing when customers complained.

The following attributes can be associated with different events:

Event Type	Field	Description
All	CustomerID	Unique identification of a customer in the dataset
All	AgeCategory	18-29, 30-39, 40-49, 50-65
All	Gender	V: Female, M: Male
All	Office_U	Benefits Office handling the customer
All	Office_W	Employment Service Office handling the customer
Visit of any page	SessionID	Unique identification of a internet session in the dataset
Visit of any page	IPID	Unique identification of an IP address in the dataset
Visit of any page	TIMESTAMP	timestamp
Visit of any page	VHOST	Internet domain of the click (www.werk.nl, digid.werk.nl). Preceding the URL.
Visit of any page	URL_FILE	URL of the click
Visit of any page	PAGE_NAME	Page name of the click (last element of the URL)
Visit of any page	REF_URL_category	Categorized location of the previous page visited by the customer. Only has a value when the customer is coming from outside the werk.nl domain
Visit of any page	page_load_error	Indicator showing if the page was loaded correctly
Visit of any page	page_action_detail_EN	For some pages extra information is available. For example the words on which a customer has searched, or the document the customer has printed.
Visit of any page	Tip_EN	On the page "mijn_tips" hints regarding finding employment are shown. This field holds the "tip" (=hint) the customer has viewed.
Visit of any page	service_detail_EN	This field has extra information for pages regarding the application for benefits. The steps of the application process are registered in this field.
Question	QuestionThemeID	Unique identification of a model question theme
Question	QuestionSubthemeID	Unique identification of a model question subtheme
Question	QuestionTopicID	Unique identification of a model question topic
Question	QuestionTheme_EN	Description of the model question theme
Question	QuestionSubtheme_EN	Description of the model question subtheme
Question	QuestionTopic_EN	Description of the model question topic
File Complaint	ComplaintDossierID	Unique identification of a complaint dossier
File Complaint	ComplaintID	Unique identification of a complaint that is part of the complaint dossier
File Complaint	ContactDate	Date when the complaint was received
File Complaint	ContactChannelID	Channel identification through which the complaint was received
File Complaint	ComplaintThemeID	Unique identification of the model complaint theme
File Complaint	ComplaintSubthemeID	Unique identification of the model complaint subtheme
File Complaint	ComplaintTopicID	Unique identification of the model complaint topic
File Complaint	ComplaintTheme_EN	Description of the model complaint theme
File Complaint	ComplaintSubtheme_EN	Description of the model complaint subtheme
File Complaint	ComplaintTopic_EN	Description of the model complaint topic

Stakeholder Meeting

The contact point at UWV is Marcus Dees (Marcus.Dees@uwv.nl).

The following meetings are organized with one company stakeholder:

1. November, 21st
2. November, 30th
3. December, 7th
4. December, 14th

The meetings will take place at the Metaforum Building of Eindhoven University of Technology (TU/e) at 11am.