AI in Marketing

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Lec 35-Personalization and hyper-personalization Using AI-III

Welcome to this NPTEL online certification course on artificial intelligence in marketing, and now we will talk about module 35. So, we are talking about personalization and hyper-personalization using AI. So we have continued through module 33 and 34 with that and now we will continue in this module also with the same topic, so that is part three, and this is the module overview. The first is how hyper-personalization is different from personalization. The second is hyper-personalization journey throughout the customer flowchart. The third is what are the preference models and the factors to update the model. The fourth is the key elements in the system architecture of hyper personalization and the fifth is how does hyper personalization looks like for some renowned companies and example of its wins and loss. Hyper personalization goes beyond segmentation. While segmentation creates customer growths based on shared likes and dislikes and activities, hyper personalization drills down to minute differences which can be used to target customers at the individual level. So now we are talking of this individual level and not several individuals.

Traditionally organizations have used customer segmentation as part of their marketing strategy in attempt to ensure customer receive relevant communications and offers but struggle to achieve deeper levels of personalization through this tried and true method. While increasing segmentation efforts appears to be a good approach, it will not result in the best ROI or maximize program effectiveness. AI-powered hyper personalization delivers optimal results by allowing companies to tailor their marketing efforts at the individual level by using data gathered on that specific customer. For example personalized product recommendations or unique discounts can be shared using unique customer data such as psychographics or real-time engagement with your brands.

This segment of one approach allows us to optimize whom we target with key messages and offers through the most relevant and appropriate channels. Implementing this strategy not only increases customer satisfaction but also drives brand loyalty, willingness to spend and overall marketing effectiveness. Hyper personalization can be

achieved in various degrees ranging from recommendation engines to connecting online and offline sales channels and from predicting customer preferences to developing tailored product or pricing. This level of personalization cannot be achieved through the implementation of a single business case. Rather it is a holistic marketing strategy that fundamentally changes the way organizations interact with customers and should be treated as an evolving and maturing practice that is embedded throughout the customer journey and part of every marketing campaign.

As organizations advance their personalization efforts, they can expect deeper relationships to develop with existing customers while also attracting new customers. What are the key differences between personalization and hyper personalization? If personalization is advertising back to school supplies for individuals who purchase soccer balls online in August, hyper personalization is advertising these same school supplies with optimized advertising based on the location the customer purchased, the time of the purchase, whether or not the customer used a credit card, whether the customer mentioned soccer and related activities on social media and more. Hyper personalization is more involved, more complex and more effective than personalization. Traditional personalization deploys profiling techniques to make assumptions about the user based on certain traits, allowing the marketers to tailor messaging, products or services based on these traits. But this is far less detailed approach than using a specific customer history and real-time context to truly understand the user's needs and intent.

Through hyper personalization, brands can identify the subtle detail about the customers that traditional personalization and profiling fails to catch, which in turn helps them to provide highly targeted and personalized products, services, promotions and content. Now this is the personalization maturity curve. On the x-axis, we have personalization maturity and on the y-axis, we have revenues and they are increasing. So the revenues are increasing as the personalization becomes more mature. So it starts with lower revenues and we have single message mailing.

Then comes field insertions. Now you see that with as we move on, on this axis, the revenues are increasing, rule based segmentation. Then again now behavioral recommendations, omni-channel optimization and then comes predictive personalization. So at the highest degree of personalization and that gives you the maximum revenues which is called as predictive personalization that is used by Amazon and Netflix and Starbucks. Hyper personalization can be applied throughout the customer journey from attracting customers with personalized web pages and dynamic pricing to provide personalized service after the purchase.

Unlike with mass media where marketers can only assume which customer type of

segment may view and identify with a specific advertisement, hyper personalization advertising uses the same platform and underlying data to present one of a multitude of targeted offers based on who is viewing the offer. Cadbury made use of customer information and photos to create a hyper personalized video ad. This campaign used customer data including age, location and likes provided via the customer's Facebook page after receiving consent and it resulted in increased click through rates of 65% and conversion rate of 33.6%. Organizations like Amazon continue to experiment with personalization after the advertising phase seeking to increase sales conversion through the use of recommendation engines that serves customers with the exact product they are looking for.

While this experience is so seamless that customers may not even realize personalization is occurring, customers now expect brand to act like Amazon and predict the product that fits their needs. Now this is hyper personalization customer journey flow chart. So it is start with custom and relevant advertising that leads to unique lending pages for each customers. Then this information goes to the recommendation engines and they make recommendation according to the uniqueness of particular customer. This dynamic pricing and offers the prices change and offers are made according to the customer's requirement.

Then it goes to the chatbots. Then comes the omni-channel customer service across all channels, pre-populated applications, real time product notification and royalty programs and re-engagement. So that all those things that you have seen in the case of Qantas airlines. So the first is custom and relevant advertising. Targeting customers with advertisements that are unique by either including relevant products or customer information.

The second is unique lending pages using queues on where customers are coming from, past visits, geographic data and preferences to choose what is being presented to them. The third is the recommendation engines providing content, product or service recommendations that are tailored to the individual customers needs or wants. The fourth is dynamic prices and offers. Changing the offer, promotion or price customers are served based on their propensity to convert. The next is service chatbots using conversational AI technology that learns from customer behavior and delivers personalized services that can answer specific questions and concerns in real time.

The sixth is omni-channel customer service using databases and AI technology to recognize and connect customers from both online and offline shopping channels. The seventh is pre-populated applications where existing customer data to pre-populate any document, processes or applications that may be required. The eighth is real time product

notification providing customers updates on the status of product shipments, promotions or refills based on their purchase history. The last is the loyalty program and engagement using customer purchases, micro-segmentation, geospatial data to send highly contextualized offers and messages. Next comes hyper-personalization with the use of preference models.

Preference models are an evolved form of choice models. However they don't just model a customer choice between the product A or B but go much further and model the customer preference both stated and inferred using deep learning. A preference model learns to model a user stated and inferred preferences from actions and information about the user. The best way to think of it is the model imitates the conscious and subconscious of the user in order to best replicate how it would behave under any circumstances. The model is the aggregate of everything that has been learned about the user and is used to predict what a user may do given a circumstance such as classic choice between product A and B.

Or it could be more advanced use case like how to generate a product image for an advertisement that will most appeal to and resonate with the customer. A pre-trained preference model may be fine-tuned on a dataset from a class that most closely resembles the consumer based on conventional classification methods for example profiles for similar demographics, interests and preferences. The preference model is an active learner so it is constantly updating its weights that is the internal store of information based on the interaction it has with the customers or supplemental information provided to the model about the consumer. Some of the factors that update the model are 1. Demographics, learned personal traits and characteristics such as your age, gender, race or personality type used initially to set a model or to correct the model when it drifts.

A special attention needs to be paid to ensure no bias or stereotypes are introduced with this sensitive personal data. The second is location and activity data, information from location and activity data such as your movements and the places you visit. Behavioral patterns, learned behavioral patterns and habits such as the times of the day you are most active or the types of activities you engage in regularly less about what you say and more about what you do. So that is what behavioral patterns are. Personal preferences, these are both stated and inferred.

Stated and inferred personal preferences and are learned by analyzing past interactions such as your search history or purchase history, the content of conversation with a personal assistant or chatbots or any stated or inferred preference. The next is the state of mind, mood and sentiments. Learnt sentiments and emotions by analyzing your

written or spoken language through a chatbot or personal assistant dialogue, a phone call or public social media post. Personal traits and characteristics, learned personal traits and characteristics such as your age, gender and personality type by analyzing various data sources and making predictions based on statistical pattern. Then, responses to recommendations, the model can be corrected by assessing the success of past recommendation in order to perfect the model for future predictions.

Conversational patterns, through analyzing the way someone speaks or writes, the model can adapt to carry out this conversational style in the generation of speech and text. Outside model behavior, any data not from direct user interaction that comes from third party and does not fit into one of the above categories. The key elements, hyper personalization is defined by two key elements. One is understanding the customers, the ability to model customer preferences. And second is then to personalize the content, the ability to generate content that will most resonate with the consumers.

So, the more you know about the consumer preferences, more individualistic the content will be. Now, how do you understand the customers? Understanding the customer preferences achieved through the use of something like a preference model to best model the consumer. The model includes immutable attributes like demographic information, long term attributes like state of mind, personality, mannerism and behavior, short term attributes like mood and current locations and historical attributes like travel patterns and search histories to name a few. So we are looking at long term attributes, short term attributes and historical attributes.

Personalizing the content. Conventional personalization techniques like content recommendation and ad serving are coupled with generative techniques like dynamic generation of highly personalized marketing material or generation or dynamic modification of multimedia like in movie branding and video style transfer where the video is altered to match the preferred style of the viewer. The next comes system architecture. Deployment architectures for hyper personalization platforms can vary and can be very complicated as per requirements. But a very simplistic architecture of a hyper personalization platform will be explained in the next slide.

This is that simplistic model. So this is a large language model. Then we have image generation model and then we have a preference model. Here we have retrieval model endpoints. Now this goes through the conversational AI, image generation, consumer models and prediction, forward channel delivery and return channel that is feedback. And then these are external user preferences are included in this preference model.

So there are two channels in interacting with the customer. The forward channel that is

delivery and in the return channel that is the feedback. The forward channel is the delivery of recommendations, predictions and dynamic content generation to the consumer as well as conversational responses when implemented with a chatbot, personal assistant or search engine. It is a communication channel back to the consumer. The reverse process is the way by which feedback is gathered from the consumer and processed by the hyper personalization system including the storage of data.

If implemented in a conversational manner or using some form of search, the input into the system is used to respond to the query as well as to understand the consumer. Other inputs beyond text and speech may go through these channels including location data and other behavioral data. Actively learning is an important feature of hyper personalization. Behaviors mood and interest can be temporal or can begin and end at any point in time. Therefore this active learning becomes important.

The input into the system is used to understand the consumer's preferences and continually update the preference model to keep accurate account of their current interests, mood and so forth. External data that updates the model can come from external sources and that data can be personal data like social media post or class or general data like current world events or trends. This data also updates the preference model in real time to ensure that the system is providing the best recommendations and content for that specific moment in time. What does hyper personalization look like? Amazon hyper personalization, hyper personalized customer experience. Customer receive highly contextualized emails with personalized product recommendations based on customer demographics, psychographics and previous purchase and view history.

The channel is email. Approach is user recommendation algorithm called item to item collaborative filtering to suggest products based on key data points to create user profiles and craft a highly contextualized email for the shopper. Data considered customer demographic, search query, average, time spent on searches, past purchase history, brand affinity, category browsing habits, time of past purchases, average spend amount. Outcome, the product recommendations engine generates over 35% conversation by creating unique hyper personalize experience for each customer. Netflix, how it hyper personalizes customer experience? Customer receives a highly contextualized and individual experiences starting from a home page that is based on their past viewing history and that uses viewing habits to recommend content. The channel is email and push notifications.

Approach, Netflix user algorithm to predict content that users will want to see. It combines behavioral attributes with predictive learning to send 103 million users unique movie and show recommendations so as to increase engagement and loyalty. What data

are Netflix considers? Products of customer behavior including viewing history, ratings, viewing times, preferred devices, viewing durations, movie information including title, genres, categories, actors, release years, etc. Members with similar taste and preferences. The outcome of this is Netflix recommendation engine has been critical to customers retention as 80% of the users flow through on a recommendation and only 20% search for content.

Now let us look at the example of Starbucks. So how does it provides the hyper personalize customer experience? So customers receive the personalized in-app experience with real-time offers based on their preferences, activities and past purchases. The channel is push and in-app notification. The approach is as part of its digital flywheel strategy. Starbucks uses a data-driven AI algorithm to send over 400,000 variants of hyper personalized messages that is food beverage offers to their customers and promote unique and compelling offers for each specific member.

The data considered is the contextual data including location data, geospatial, demographics and traffic. Customer preferences, customer activity and past purchases. So all these are this is all the data that they use. And the outcome is marketing campaign effectiveness and incremental revenue via offer redemption increased threefold with an estimated 25% of total transactions being conducted via the mobile app. Now we will look at the case study of win and loss.

So targets hyper personalization mistake. Andrew Poll, a statistician working for Target successfully determined whether a Target customer was pregnant even before she knew herself based on her personal shopping history. This issue arose when Target was anything but subtle when applying this data. Once Poll was able to determine which female Target shopper may have been pregnant, Target shared their data points with marketers. In this case, the father of the teenage girl complained to Target that his daughter was receiving achievements for maternity clothing, nursery furniture and pictures of smiling infants. At that point in time, the father and the daughter did not know she was pregnant and Target's marketing campaign shocked them.

Although Target was using a form of personalization with good intentions to create a better, more personalized shopping experience, Target did not consider the issue of applying their data to all female shoppers. If Target had applied their data to only women over the age of 21, it is likely that this type of hyper personalization would have been more well received. So we can easily contrast this scenario with an example from Amazon where they used better hyper personalization practices. But how did Amazon win with hyper personalization? A good example of hyper personalization can be viewed in Amazon's suggested item that you see on product pages and during the checkout

process. Amazon locks the products that you see, even if you do not purchase them.

Based on your browsing history, not just your purchasing history, Amazon recommends similar products that you may be interested in based on what other customers with similar viewing habits have seen. Over time, the end result is a highly tailored, highly personalized shopping experience that Amazon competitors cannot match. 35% of Amazon customers purchase items that are recommended to them. These recommendations are automated using predictive modeling to consider which product customers will be interested in based on their previous purchase history and the data collected from the social media. Whether you agree with the way the data is collected, this is an example of hyper personalization done right and also implemented correctly.

So in order to conclude in this module, we have understood how hyper personalization is different from personalization. We have also discussed the steps in a hyper personalization customer journey flowchart. Then we have studied about preference models and how to update it. We have also gone through the key elements as well as the system architecture of hyper personalization. Finally, we have understood how hyper personalization looks for some famous brands and a case study of hyper personalization win and loss.

And these are the nine sources from which the material for this module was taken. Thank you.