

Let's Solve

Whitepaper

Micro-Personalization for Consumer Engagement & Experience on OTT

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Abstract

Due to the increasing availability of high-speed internet and multiple advancements in technology, the demand for video streaming services is continuously increasing. On the supply side as well, there are a lot of media companies who are jumping on the OTT bandwagon to offer video streaming services. As a result of this development, customers have a lot of content and platforms to choose from. It has also become increasingly easy for them to switch from one platform to another platform without incurring any switching costs.

However, media companies worldwide are facing a two-pronged challenge: they are spending millions to create content and they are struggling to connect consumers with the right content, and the right experience. So, the critical questions are - Can media companies offer direct-to-consumer (D2C) OTT services to retain consumers? How do they optimize their business models and get maximum ROI on their content investments?

Spoilt with choices: The OTT market

Along with media companies, even telecom and technology companies have started aggregating content across a plethora of platforms to retain and acquire customers. Evidently, OTT is the future of entertainment and will only grow from where it is and at a rapid pace. According to a [market research report published by IDate Digiworld](#), the OTT market is poised to grow by an average of 14.2% by the year 2022.

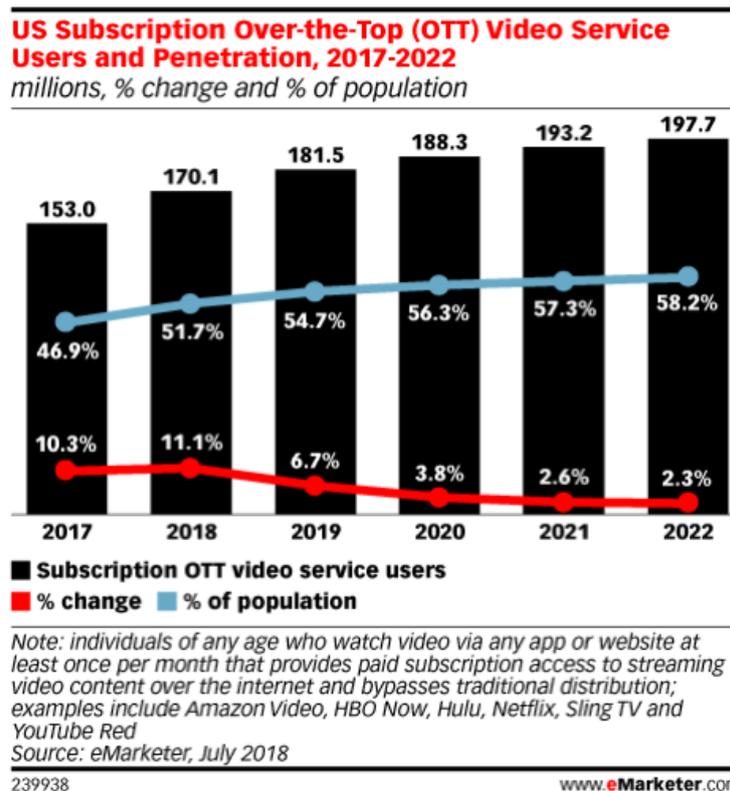


Fig 1: Growth of OTT in the US market (Source: eMarketer)

OTT platforms have disrupted the traditional boundaries that have been existing at inter-industry and at intra-industry levels. Entertainment may be believed to be purely a media and entertainment industry play, however there is a gradual shift as more and more players from the telecom and technology industry enter the fray to provide entertainment offerings, either in the form of aggregation over OTT platforms or creation of exclusive content. So, how do consumers choose or how does an OTT service provider retain consumers? In the year 1970, Alvin Toffler introduced a term "Choice Overload", in his book "Future Shock". "Choice Overload" implies that decision making becomes difficult after a point, with increasing information load and more choices.

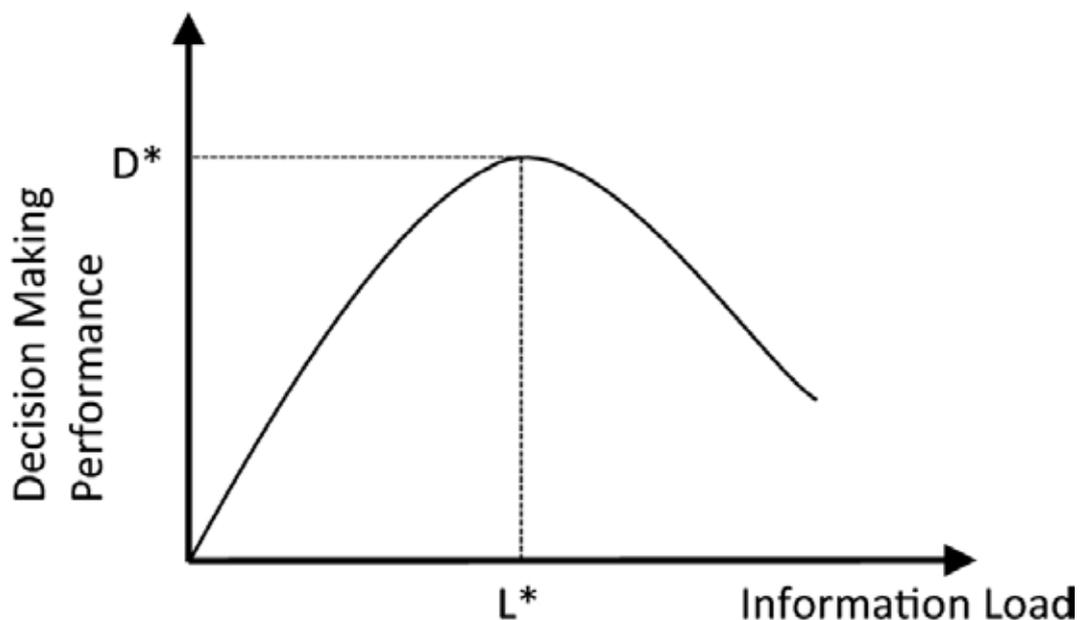


Figure 2: A graphical representation for decision making performance v/s information overload (Source: [Springer Link](#))

Today, customers, with reducing attention spans, not only want to watch quality content, but they also want to watch something of their liking without spending a lot of time searching for that content. Therefore, it is imperative that, the platform needs to be extremely responsive to consumer needs and must provide them with the right content with the right experience and engagement.



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How are consumer placed?

Customer acquisition is more expensive when compared to customer retention. Consumers today have a variety of choices at their disposal. As per a [report](#) published by Parks Associates, in 2017, 19% of US households subscribing to an OTT service had cancelled one or more services within the last one year. Unless the content on a specific platform resonates with the customer's liking, there are not many reasons for the customers to stay on a platform. Having said that, most of the leading OTT platforms will have sizeable content library with content across genres and sub-genres and localized across languages based on target geography. Originals and flagship content can get new consumers to the platform and make existing consumers spend some time on the platform, but what can keep them connected and engaged is the ability to continuously serve them the content that they would like to watch.

Personalization: Is that only enough?

Today, with reducing attention spans and increasing availability of choices for the consumer, it is important to recommend the right product or services to the consumer in a highly personalized manner, irrespective of the industry the product or service belongs to. The personalization becomes even more critical when it comes to entertainment as taste, variety and volume multiplies when it comes to content.

When we talk about personalization in OTT context, it is about serving the right content to the user without the user having to do the heavy lifting in searching for the right content. This becomes even more of an acute problem when user doesn't know what to search for. Hundreds of thousands of content titles exist on a given platform, however the user won't know what exists on the platform. He will not only have to search or browse for it , but also will have to be lucky enough to be able to land on the content, that he would be interested in watching, among a 'crowded library' catering to consumers of all tastes and preferences. Searching and browsing for entertainment content is not entertainment, watching is. It's a no-brainer that personalization is a must and all OTT platforms personalize the user experience, albeit at different maturity levels. However, is that good enough?



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Micro-Personalization – Is that the only answer?

Micro-Personalization is an extreme level of personalization driven by highly comprehensive understanding and insights into each consumer persona and its content preferences and behavior. Micro-personalization is not only limited by insights from consumer demographics and history of content watched in the past, but it also goes much deeper in order to understand a consumer's content taste much beyond genres and sub-genres, viewing preference and content consumption behavior and pattern.

Micro-personalization is a seamless and highly transformational experience for today's consumer in a world where consumers are served with right recommendations with right content attributes connecting consumers with the right content that they would love to watch. With micro-personalization, this connect is enabled by technology with very little or no efforts needed from consumer to find it themselves. Micro-personalization in OTT will be multi-dimensional and include custom categories (content categories personalized beyond genre and sub-genre such as artwork, synopsis, micro-content (automated compilation of scenes based on consumer content preferences and watch behavior), and marketing channels and communications.

The role of AI

Artificial Intelligence is at the core of micro-personalization. An exhaustive data model is applied to capture each interaction between the consumer and the platform, from search to search results' browsing and clicks, from content previews to content playback, all replays and skips along the timeline, in addition to usual access frequency, days of week, time of day and other such straightforward content watching parameters. Using advanced algorithms, consumer behavior and consumption patterns are analyzed over a period and micro-personalization is built based on the models that keep getting refined over time.

Cracking the code for Micro-Personalization

As it would be anyone's guess, technology is at the heart of micro-personalization and data, analytics and artificial intelligence (AI) come together to deliver this experience. Fig 3 exhibits the building block of the micro-personalization. As any advanced data and analytics solution, this will need a robust data model that captures all datapoints that are needed to understand consumers preferences and behaviour and to serve them content in a micro-personalized manner. With current state of technology, capturing data is not a challenge once it is known what needs to be captured. And this 'to be captured' comes from an exhaustive data model and is fed into from multiple data sources including first, second and third-party data. Timeline metadata, also called as temporal metadata, for content plays a key role in micro-personalization by uncovering the consumer's interest that goes beyond just genres, sub-genres and casts. The next block is set of algorithms that consumes data from this model to deliver deep insights that are consumed by personalization engine directly. Machine learning plays a pivotal role here as the engine keeps learning more and more about the consumer, as they spend more time on platform, and keeps finetuning attributes of each fan-persona.

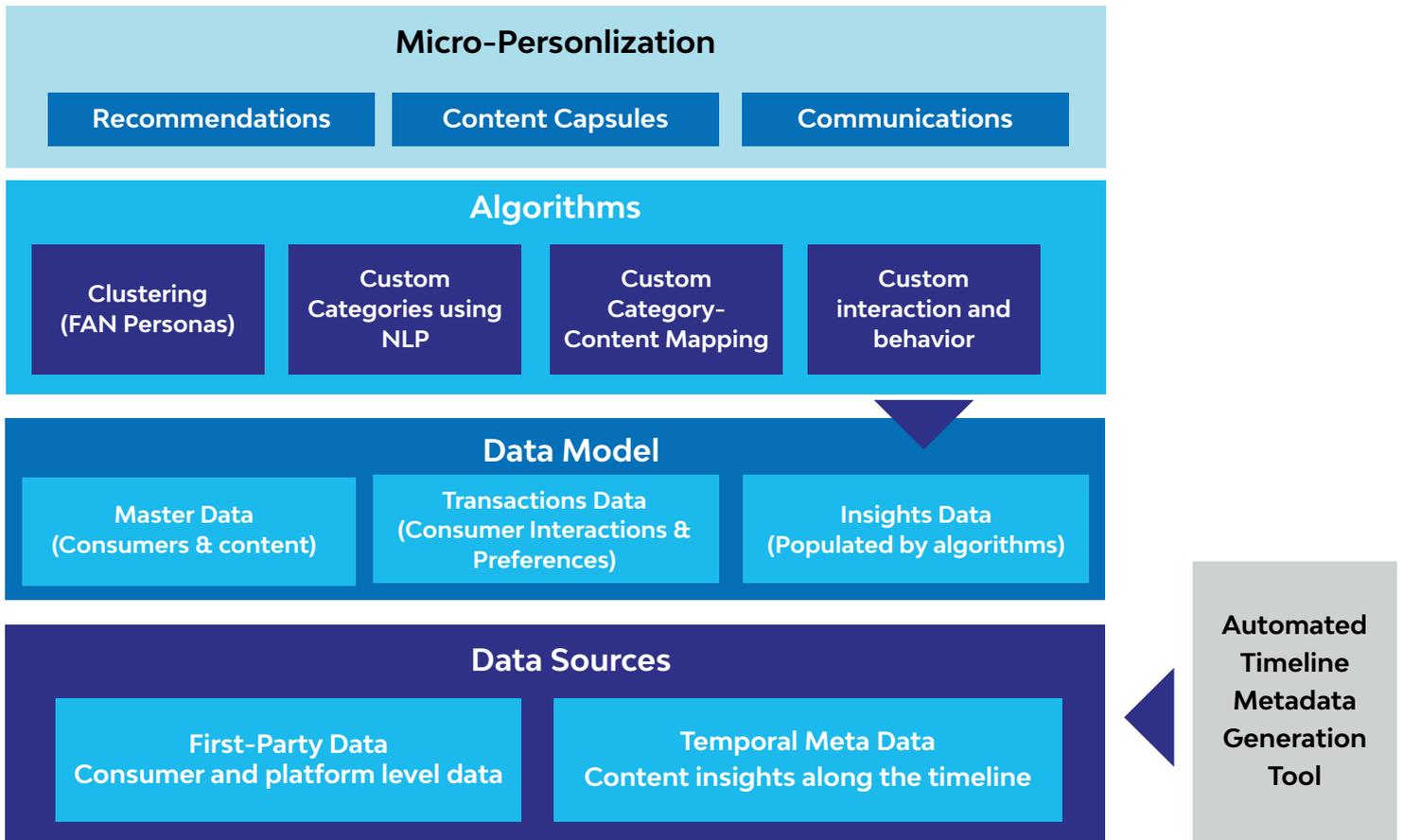


Figure 3: Building blocks of micro-personalization engine

Let us get a level deeper into the data model as that sets the foundation for how impactful the micro-personalization engine would be. As shown in the diagram, it has a three-tier structure: Insights Data, Transaction Data and Master Data.

a) Master level data is segregated further into two other categories:

- Content Level Master Data: Content level master data comprises of movie related information such as genre, sub-genre, cast, year of release, ratings etc. and the content related temporal meta data
- Consumer Level Master Data: Consumer level master data contains exhaustive information pertaining to customers and their preferences.



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b) Transaction level data is captured as and when the customer starts interacting with an OTT platform and performs several operations on the platforms, there are several data points that get captured. It is not only generic data such as demographic information such as age, geographical location etc. but also information such as what time of the day is the consumer performing operations on the platform, what day of the week is the consumer spending a lot of time on the platform, what are the sequences/scenes he is watching repeatedly or skipping altogether. In short, all events related to each interaction of the consumer with the platform is captured and fed into the data stores created as per data models that satisfy all the business use cases. Transaction level data is segregated into three categories:

- Consumer – Content transactions: This level of transaction data comprises of information pertaining to the content viewing behaviour of consumers. This piece is comprised of data pertaining to the content watched by consumers and the number of times they have watched or skipped a specific sequence.
- Channel Transactions: This level of transaction data comprises of the data generated because of transactions with various channels.
- Subscription Transactions: Subscription data consists of the data that is based on the subscription lifecycle of the consumer. This data can reveal interesting patterns that unfold when the consumers exit the platform.

c) Insights data is centred around the descriptive analytics done on transaction level data. This is the basis on which recommendations are made to a consumer in terms of content and promotions. There are two very crucial pieces on which the insights data is based. First, the temporal content metadata and second, the user metadata that is generated based on the consumer's behaviour. Insights data is segregated into the following:

- FAN Personas: Out of the universe of data points captured, a set of attributes are used to build unsupervised learning algorithms to form an optimum number of FAN communities(personas).



Figure 4: Word cloud generated for a FAN persona based on viewing behaviour

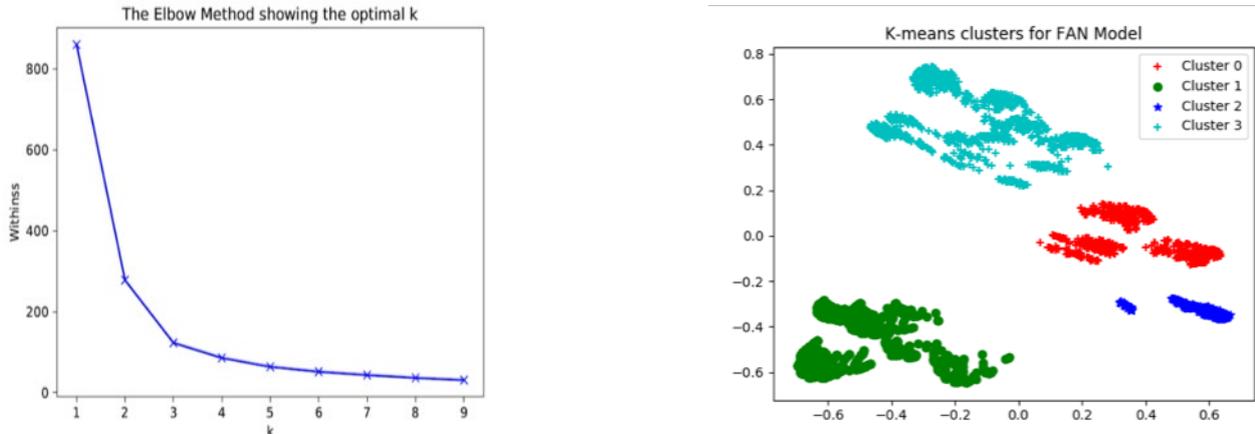


Figure 5: K- Means Clustering output for the viewing patterns generated for a sample (5k customers)

The word cloud depicted in the figure above shows the specific tags that are associated with a specific community. These communities keep evolving with time as more and more data is generated. As a next step, using classification techniques a new user is assigned to a community and content is recommended using the basic information that the platform has about the user. There are several ranking and sorting algorithms on the basis. As the user starts increasingly interacting with the platform, recommendations are gradually personalized as the platform learns more and more about the behavioural attributes of the user.

- FAN Persona-custom categories mapping: Custom categories are content themes. Content themes are different from genres and are comprised of various attributes including genre or cast or a specific scene. E.g. A movie that falls under the genre, "Action" could be based on a bank heist theme. Synonyms are generated for the content temporal metadata using WordNet. After transformation of the data using NLP POS tagging post TF-IDF (Term Frequency – Inverse Document Frequency) vector representation, cosine similarity score is generated based on which categories are ranked and mapped to FAN personas.
- Custom category and content mapping: Content is mapped to each of the custom categories again using a cosine similarity score between categories identified and the temporal content metadata.

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'crime drama': {'fan_persona': 'crime drama', 'score': 0.456, 'Category': 'movies based on organized crime', 'scoreList': [0.456, 0.279, 0.239, 0.239, 0.168, 0.0, 0.0, 0.0, 0.0, 0.0, 0.0, 0.0, 0.0, 0.0, 0.0, 0.0, 0.0, 0.0, 0.0, 0.0], 'TextList': ['movies based on organized crime', 'movies based on crime dramas directed by women', 'movies based on courtroom dramas', 'movies based on highschool dramas', 'movies based on murder based dramas', 'movies based on suspense movies', 'movies based on biographies', 'movies based on musicals', 'movies based on heist', 'movies based on earthquakes', 'movies based on communism', 'movies based on drowning', 'movies based natural disasters', 'movies based on execution', 'movies based on an extra terrestrial plot', 'movies based on prison', 'movies based on martial arts', 'movies based on friendship', 'movies based on world war 2', 'movies based on action heroes', 'movies based on action based movies', 'movies based on troops', 'movies based on terroristplot', 'movies based on drug lords']}
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Figure 5: Indicative Cosine similarity scores of various custom categories



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Conclusion

Over 55% of consumers are searching for something new to watch every week and more than 62% struggle to find something they would like to watch. Viewers need to be able to find that content quickly before they get disengaged and start looking for options, which are plenty and with almost no switching cost. Churn rates for OTT are very high and surfing for the right content options from the content library, so that the consumer does not need to move away from the home screen is what micro-personalization is all about. It has the potential to help media companies make their OTT business models succeed with better conversion, engagement and retention.

About the Authors



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Manish is the Head of Business Development and Solutions for Media, Entertainment Information Services for Americas at LTI. He comes from a strong Strategy & Operations Consulting background, with deep industry knowledge. Manish focuses on enabling business transformation for global M&E customers by bringing in the right set of industry insights, and the latest technology solutions & platforms for helping them achieve desired business outcomes.



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