TCS Personalization Framework

TCS Presentation
Agenda

- Hyper Personalization – Trends and Challenges
- High Level Approach for Hyper Personalization Strategy & Roadmap
- Indicative Use Cases for Hyper Personalization
- Hyper Personalization – Indicative Architecture
- TCS Value Proposition
Hyper Personalization – Trends and Challenges

Key Trends in this space...
✓ Reinforcement Learning using Cognitive Services
✓ Personalized Search Recommendation
✓ In-session behavior tracking using interaction data
✓ Recommendations in real-time

Challenges in Recommendation Systems
✓ What recommendation approach should be used for what type of customers?
✓ How can the issue of ‘cold start’ be addressed when new products or new users are added?
✓ How to understand trends influencing society and provide appropriate recommendations?
✓ How to model for changes in customer preferences & behavior?
✓ How to integrate external data to know the customer better?
High Level Approach for Hyper Personalization Strategy & Roadmap

**Plan & Assess**
Workshops with business teams

**Analyze**
Business Priorities, Gaps & Roadmap analysis

**Recommend**
Recommendations for Future State

### Business Discussions
- Business Priorities
- Inputs for roadmap
- Challenges & Pain Points
- Future State needs

### Current State Analysis
- Data Availability
- Current Analytics being performed
- Recommendation Strategies in use
- Current Architecture

#### Recommendations
- Functional & NFR Capabilities for Recommendation & Triggering
- Recommendations for New Customer Journeys
- Feature Store Data Architecture Recommendations
- ML Architecture Recommendations – Build, Consume, Deploy & Security
- Framework for Model Measurement Monitoring & Governance
- Roadmap - Short Term, Mid term and Long Term
- ROI Calc, Implementation plan & Estimates
Indicative Use Cases for Personalization & Hyper Personalization

- **Global Recommendations** – Recommendations Based on most recent Trending Categories, Frequently Purchased & Most Popular by Segment, Weather & Seasonal Products and Holiday Season based products

- **Affinity Based Recommendations** – Recommendations that tap into what items were bought together to provide “Purchased Along with this..” type of recommendations

- **Content Based Recommendations** – Recommendations that tap into recently purchased or viewed products and use their product attributes for finding similar products to recommend to customer

- **Hyper Personalization** - Provide Hyper Personalized and relevant recommendations based on Customer Attributes and purchase history. Tailor recommendations towards individual customers thereby creating enduring customer relationships and unlocking a new horizon of growth

- **Leverage In-Session Behavioral Data to Drive Journey Aware Recommendations** - Use in-session behavioral data to decipher customer intent and provide tailored real-time recommendations based on items clicked, customer location, weather, season & device

- **Provide Curated Complete the Look Recommendations** – Respond to in-session views/clicks by recommending visually compatible products which may include recommendations in newer categories or microsegments. (e.g., Recommend Handbags or Lipstick when a Skirt or Top is clicked)

- **Respond to changes in Customer Shopping Intent** - Detect customer intent using in-session interaction data to provide better recommendations in terms of Top Trends, Top Deals, Complete the Look etc.
Hyper Personalization – Indicative Architecture

**Sources**
- Customer
- Product
- Transaction
- Interaction
- External

**Data Lake**
- ADLS
- Delta Lake
- Databricks

**Feature Engineering**
- Spark
- Python
- Databricks

**Feature Engineering Engine**
- Feature Selection
- Impute Missing Values
- Aggregations
- Scaling & Normalization
- Dimension Reduction
- Data Quality

**Feature Store**
- ADLS
- Delta Lake
- Azure Redis
- Azure Purview

**Feature Metadata**
- Persist feature definitions into Azure Purview

**Feature Store**
- Offline Feature Store – ADLS + Delta
- Online Feature Store – Azure Redis
- Feature Registry – Azure Purview

**Model Deployment**
- Azure
- Kubernetes
- VNet
- Load Balancer

**Data Pipelines**

**Build & Train**

**Deploy**

**Retrain**

**Monitor**

**Drift Detection & Retraining**
- Model Monitoring
- Drift Detection
- Model Retraining

**Authenticate**
- AKV
- AAD
TCS Value Proposition

• TCS partners with several customers across various industries, driving their digital as well as personalization journeys. We can enable and enhance hyper personalized experiences for your customers in the following ways:

  o **Strategy for Hyper Personalization** - TCS can help customers assess their maturity in the personalization space and help them define a strategy as well as a roadmap that will differentiate them among their competitors, transform customer experience and drive growth. Our assets and offerings enable accelerated transformation and business insights.

  o **Accelerating the deployment of Hyper Personalization** - TCS has a rich experience in the personalization space which has helped us to build a library of assets and accelerators that leverage the combinatorial power of automation and best practices that accelerate the process of building the hyper personalization engine.

  o **Strategic Partnerships** - The TCS network of strategic partners includes business software providers, niche technology developers and startups. TCS is strategic Microsoft Gold Partner and part of the 2021–2022 Inner Circle for Microsoft Business Applications. TCS is uniquely positioned to drive your growth and transformation

  o **Technical Expertise** - TCS has a dedicated Microsoft Business unit that will help leverage TCS’ deep domain knowledge across industries and global talent pool trained on Microsoft technologies, to help customers leverage the power of AI, automation and cloud to enhance customer experience, optimize operations and spur innovation.
Thank You