eTUR2020

Knowing the customer

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An Indra company

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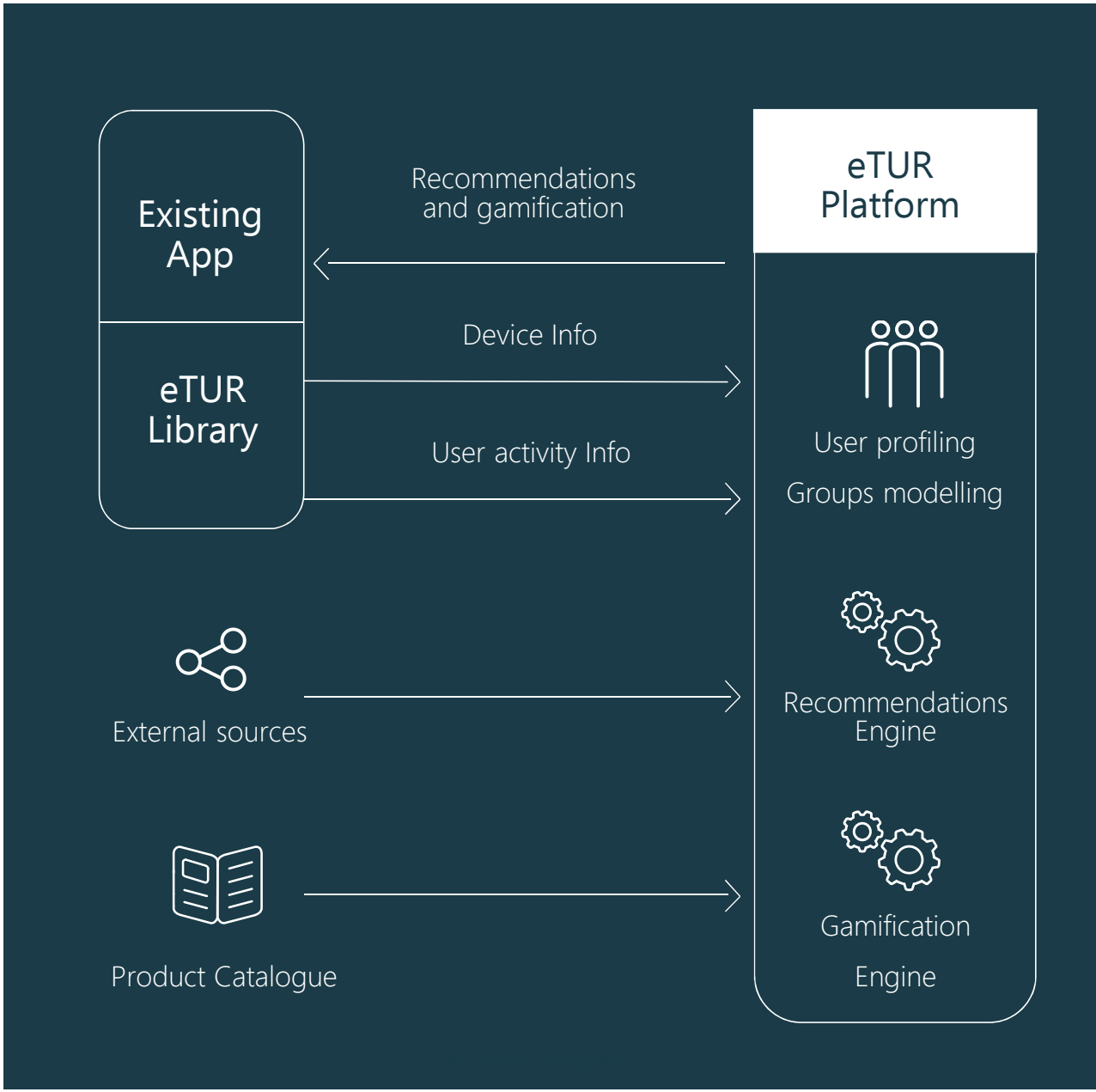
Introduction

eTUR2020 massively **captures and processes information** from multiple users and their activity in order to generate personalized context-aware recommendations.

- A library is required to be embedded in the client App
- Oriented to Tourism and Retail sectors



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Information Source

1. User device information:

- Position, even inside buildings
- Accelerometer and Activity type (ie: foot, car, bike, ...)
- Other installed applications
- Username, language, photos
- MAC, type ("Smartphone"), Operating system, Brand and model
- Possibility to identify the user, even using different devices
- Activity in social networks

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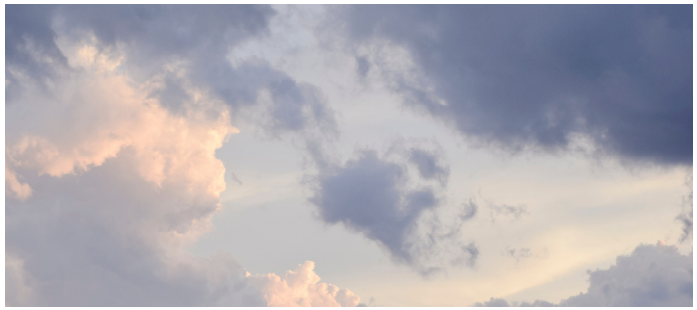
Information Sources

2. User activity in the application where eTUR resides:

- Navigation and displayed Products
- Categories query
- Shopping Cart and Purchased Products
- Wish list



3. User Context and external sources:

- Weather information
- Customer device price
- Installed Apps price and type

4. Product catalogue

- Product catalogue to propose to the user is ingested in the platform

User Profiling

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Discover user preferences and interests is crucial to provide personalized proposals

Individual characteristics

Gender	Family members	Nationality
Cultural level	Age	Languages

Interests

Audiovisual	Health	Finances	Videogames
Sport	Reading	Photo	Travelling

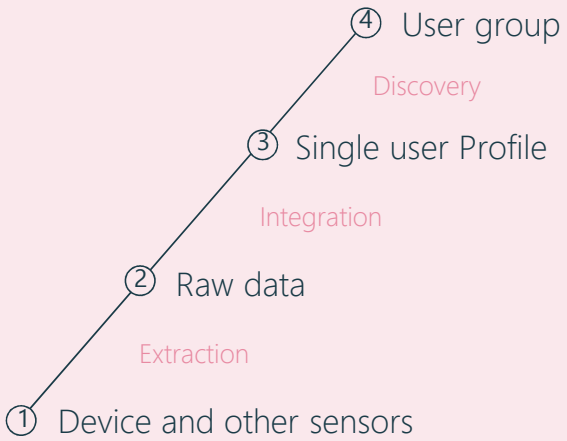
Others

Type of buyer	Social networks
Work status	

User profiling

The system progressively learns the user’s profile. Some of its characteristics are obtained directly from the sources of information and others are inferred.

Profiling phases



In the last phase of profiling, based on many individual profiles, user groups with common characteristics are identified

Profiling techniques

- Assignment to stereotype at the beginning
- Ontological approach
- Bayesian networks
- Hidden Random Markov Fields
- Filtering based on content
- Collaborative filtering

Dynamic behavior patterns

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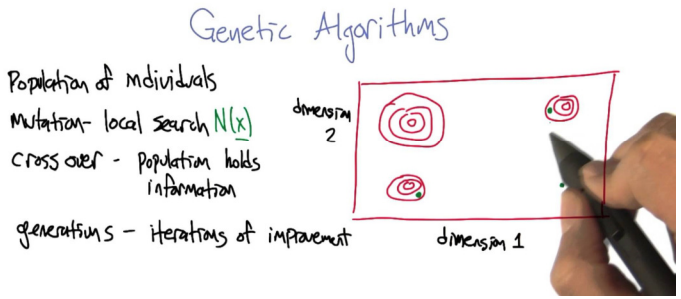
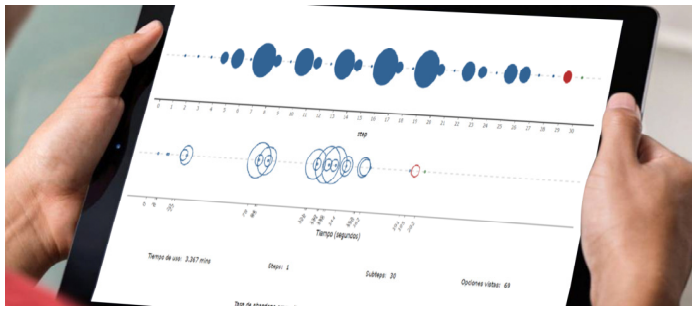
User activity and context during the session is gathered in order to be analyzed.

A timeline with the visited elements and their context (available options) in each step is generated.



The withdrawal rate is modeled by means of genetic algorithms based on:

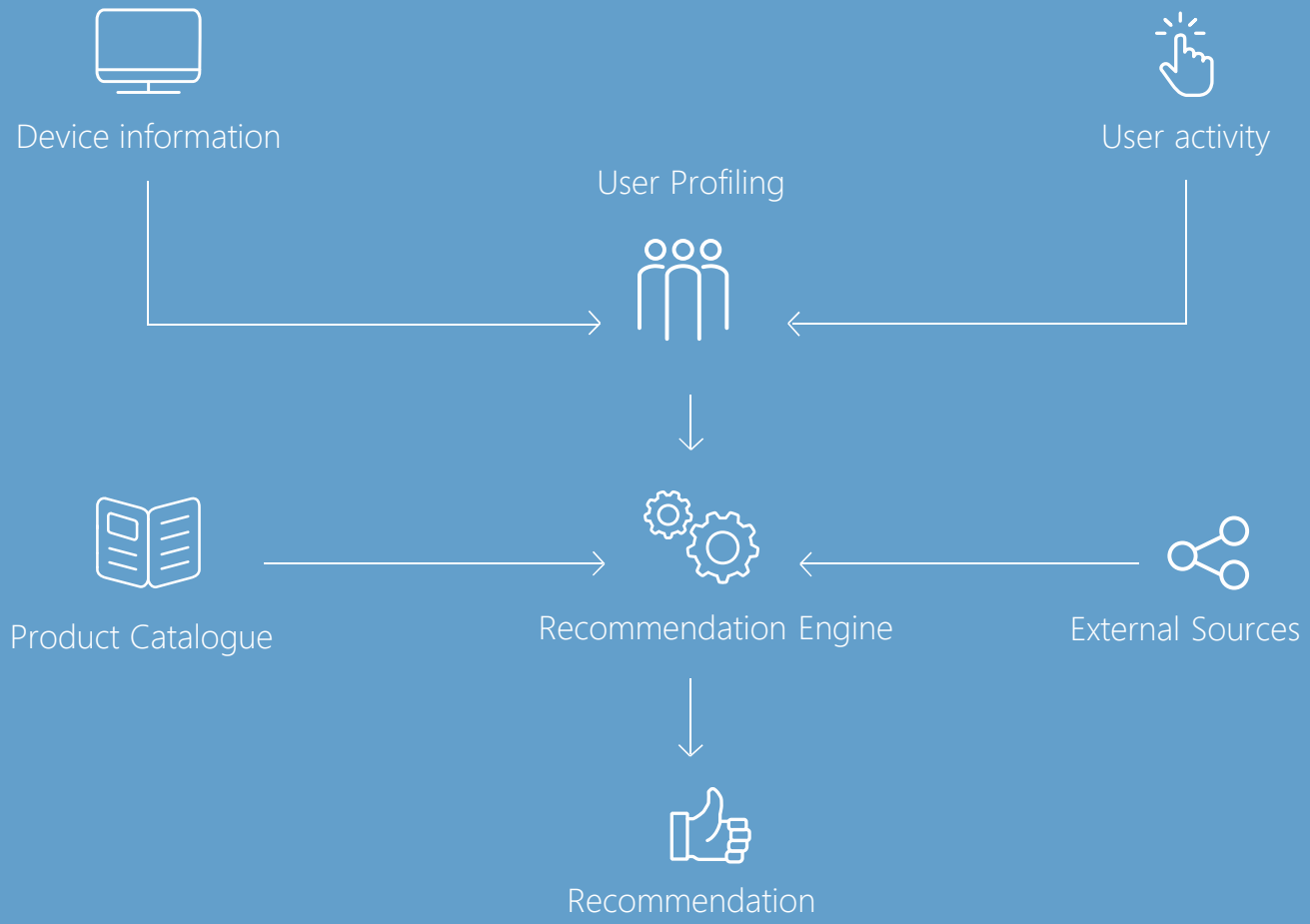
- User behavior in the session: Time, context and activity
- User info: Desire, interest, financial capacity



Algorithms allow obtaining a prediction to evaluate whether a user will buy or not

Processing

User profile and recommendations are generated taking into account all sources



Recommendation Engine

The recommendation engine combines algorithms based on the **interactions of users** (Collaborative-Filtering type) with others that rely on **ontologies** that model the **characteristics of the users and products** to be recommended (Content-Based), taking into account the context.

Collaborative –Filtering

- Coocurrence-based recommender
- Content-based recommender
- Hybrid recommender

Content – Based

- Semantic-based recommender
- Context-aware Matrix Factorization

Recommendation Engine

Recommendation types:

- **seen by others:** recommended products seen by others
- **bought by others:** recommended products bought by others
- **behaviour me:** recommended products based on previous interactions of the current user and previous interactions of users similar to the current one
- **similar items:** products similar to the one currently selected

Recommendation engine

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Behavior scenarios:

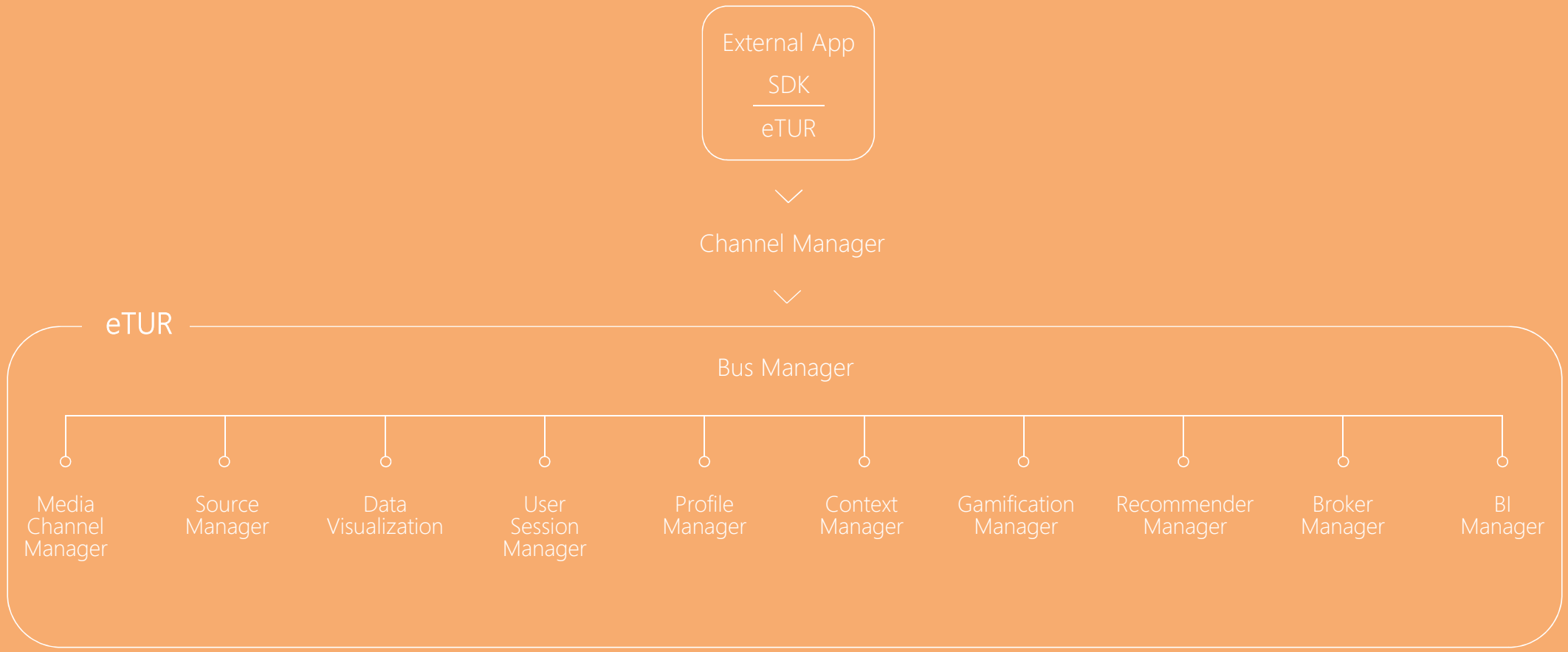
- It's raining, therefore outdoor activities are eliminated.
- The user has visited Thai and Japanese restaurants in the previous weekends. He could be interested in Asian cuisine. Today is weekend. Indonesian restaurants are recommended
- It' s good weather, holiday and user is in Location1. There is no information available in the system on the opinions of users regarding the events / restaurants / activities in Location1. But on the other hand users have made a positive rating to a concept "chiringuito" in Location2 very close in a similar context (when the weather was good and it was a holiday). Chiringuitos in Location2 are recommended to the user.
- The user has not previously interacted with the platform, but the system knows that he is Brazilian, age 20 and male. Restaurants with disco and dance are recommended.

KPIs

System variables with different ways of visualization (in visits, in euros, in recommendations):

- Number of events entering in the platform from any channel
- Recommendations made by the platform algorithm
- Recommendations sent proactively
- Gamification on the platform
- Geofencing on the platform

Architecture



Gracias!