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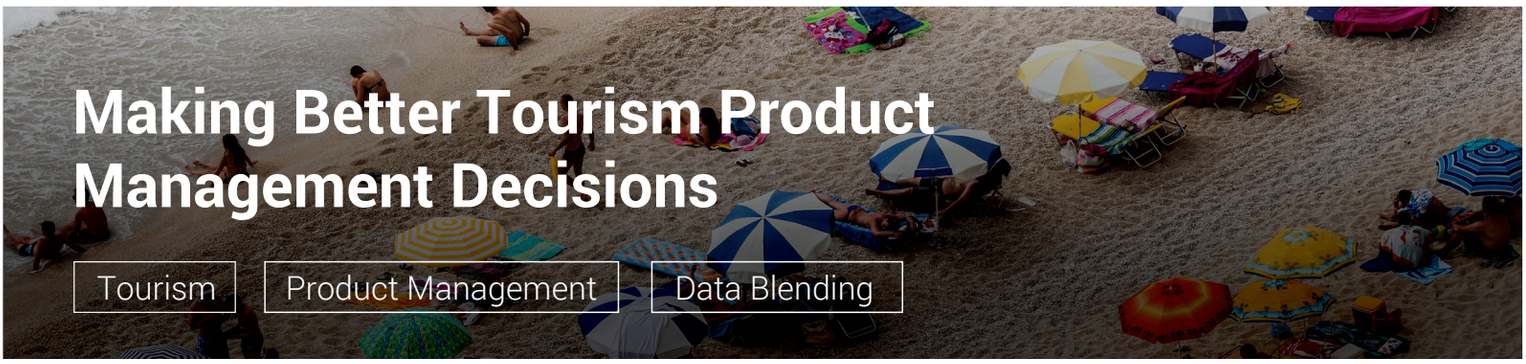

Making Better Tourism Product Management Decisions

Tourism | Product Management | Data Blending

Blending different data sources

In the increasingly competitive tourism market, companies offering hotel rooms, holiday packages, cruises or flights must pay close attention to their market share and customers. In specialized sub-branches of the industry, such as holiday cruises, the offer of a comprehensive and all-round attractive package to inspire travelers must be closely monitored and improved. To this end, data-driven dashboard solutions for customer-centric performance management help companies cope with the market requirements.

To get a comprehensive overview of a company's current offers on the market, various data sources must be integrated and merged: business data, publicly available customer ratings, news data, journalist reports, and press releases. By crawling these data from a variety of different public sources using KNIME and an integrated Python script and enriching them with company and other relevant data, a comprehensive database is created, which can be fed into any dashboard-solution software (Fig. 2). A special focus here lies on the data integration from all available and desired sources for the individual ships run by a company.

Deploying a Guided Analytics application

A KNIME workflow is built, which crawls all these sources. After the data has been crawled and saved using a REST API interface, it is imported from the JSON files and converted into a KNIME table format using filtering, mapping, and data encoding. A special focus is placed on data integrity and cleanliness. Then a set of pre-defined dictionaries is used to ensure that the customers' ratings are correctly mapped to the specific ocean carriers, the correct ships, even the cabin they stayed in. The database can then be easily tailored to the respective market analysis. From these data, high-level data aggregations can be formed to create a compact set of rating dimensions. Finally, last touch ups, e.g. restricting the rating period, are made to create a database that can be fed into the preferred dashboarding tool.

The workflow is then deployed in an Azure cloud environment as a Guided Analytics Application, making vast computational resources available to deploy in-depth descriptive analysis on data integrated from various resources, enabling alerts and notifications to company managers for improving/deteriorating products.

Results

With this analytical application, companies can manage their product more in a more informed and intelligent way due to:

- Comprehensive data integration generated by KNIME
- Ease-of-use production system, which is automated for continuous data integration
- Notification and alerts for improving/deteriorating company products

KNIME Software

KNIME provides the tools and resources to easily blend data from different sources in one visual workbench. The vast selection of available nodes, plus the procedures that are possible, make it easy to create solutions such as this. Here, JPython Function, JSON to Table, String Manipulation, and Chunk/List Loops nodes were heavily used. Deploying the workflow in a Microsoft Azure cloud environment, provides additional computational resources when needed.

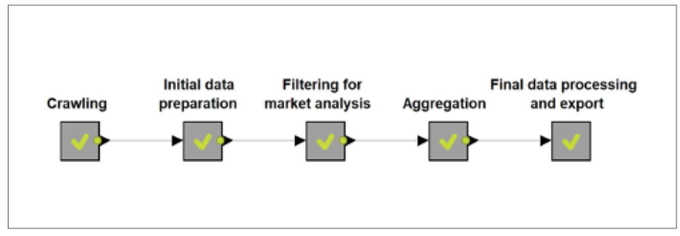

Fig. 1: High-level KNIME workflow

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