Using Historical and Weather Data for Marketing and Category Management in eCommerce

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Motivation

• Contemporary marketing business in the EU is dominated by **global companies** with access to **large amounts of data**

• **Small and medium-sized enterprises** (SMEs) only have access to a fraction of those data

• We propose an approach for supporting merging the data from different SMEs and other contextual sources
The project at glance

**Corporate Data**
- QMiner

**Visualisation**
- Knowage

**Data integration layer**
- DataGraft++ ASIA

**Analytics**
- CONSUMER JOURNEY ANALYTICS
  - ceneje.si
  - BIG BANG

- LOCATION INTELLIGENCE
  - measure

- DIGITAL MARKETING CAMPAIGN OPTIMIZATION
  - JOT

- EVENT-BASED SALES ANALYSIS
  - GfK

**Event Data**
- Event Registry
  - Event Data

**Enrichment**
- Linked Geo
- Linked Products

**Event Data**
- Weather APIs
- Weather Data

**Event Data**
01/10/18
SACBD2018
Business Data

Ceneje.si

12 mio
monthly user
interactions in
product search

Leading comparison
shopping platform in
the Adriatic

Big Bang

2.5 mio
sold products
across
channels yearly

The biggest Slovenian
consumer electronics
specialist
• European Centre for Medium-Range Weather Forecasts (ECMWF)

• An independent intergovernmental organization supported by 34 states

• **Historic weather data** and **historic weather forecast data** for anywhere on the globe for the past 30+ years
Developed Services

[B2C] FOSTERING USER ENGAGEMENT IN E-COMMERCE

[B2B] CATEGORY AND MARKETING OPTIMIZATION
Fostering User Engagement in e-Commerce

- Predict sales spikes from weather patterns to inform user of increased demand
- Test case: air-conditioning unit sales in summer
- Predictive model:
  - built on data from 2015-2017
  - linear-kernel SVM
  - using forecast data for three days in advance: precision: 78.7%
  recall: 54.0%
Predicting AC Sales

The diagram shows the relationship between temperature and AC sales over time. The x-axis represents time, from January 2015 to November 2017, and the y-axis represents the number of sold units. The line chart displays the sales data and various markers indicating TP, FN, FP, and max temperature. The pattern suggests that AC sales are highest during warmer months, likely correlating with increased demand due to higher temperatures.
Category and Marketing Optimization

- Support monitoring and understanding of customer reaction to product management

- Observe and predict changes in pageviews, deeplink and sales when a product price drops

- Analysis made for the TV category (data from 2015-2017)
Discounts effect scatterplot
Predicting discount effect

- Predict when the change in consumer reaction will be above some threshold
- Predictive model:
  - when average (padded) deeplink difference is above 0.005
  - linear-kernel SVM
  - precision: 62.3% recall: 34.2%
  - further work needed...
- How to extract more signal from the connected data?
Conclusions

• Proof of concept:
  – Weather context features can bring insight and value to e-commerce businesses
  – Merging of data between multiple players in the consumer journey can bring benefits to all of them

• Work in progress
  – General purpose events
  – Event specific models for customer engagement
  – Going to production
Supporting Event and Weather-based Data Analytics and Marketing along the Shopper Journey

Discuss your event and weather-based analytics with the LinkedIn group
Weather & Event-based Analytics in Business

Get in touch with us!

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