Optimizing Online Marketing Efficiency

Use Valid Cross-Device Data to Analyze the Impact of Marketing Activities in an Omni-Channel Environment As Part of an Attribution Approach

Introduction

In 2019 the total spending on search ads will reach up to 2.8 billion Euros and for display advertisment reach up to 2.1 billion Euros (eMarketer 2015).
There are widely applied static - simplistic and rule-based - attribution approaches in practice as well as a few dynamic approaches in the scientific community. Are these approaches optimal to measure the efficiency of marketing activities?

NO, because simplistic approaches, only consider one touch point.

NO, because rule-based approaches are static, cannot take dynamic change into account and furthermore neglect non converting sessions.

NO, existing dynamic models are currently not applied in a practical environment due to complexity and inaccurate results.

Objectives

Step I
- Identify existing dynamic attribution models in the science context
- Determine criteria for dynamic attribution models in an omni-channel environment
- Formulate actual research gap, future research areas and research questions

Step II
- Derive a model which uses a valid cross-device data foundation and different data sources in an omni-channel environment

Step III
- Identify the impact of mutual channels in a cross-device and omni-channel environment on marketing actions
- Suggest adjustments and best aproaches for practitioners applying that model

Step I — Identify literature, determine evaluation criteria and evaluate literature

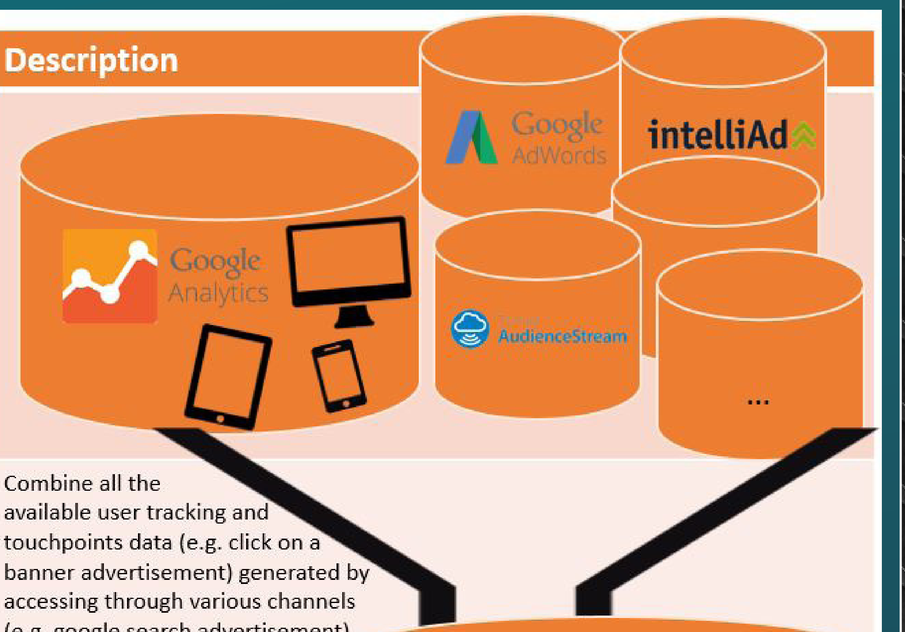
Overview of modeling approaches

Attribution Category		Examples (extract)
Algorithmic	Dynamic	Saho, Li 2011, Xu et al. 2014, Zhang et al. 2014
Rule Based	Static	Linear, Position based, U or W weighted
Simplistic		Last click/last interaction, last non-direct click, first interaction

① Approach					
Saho, Li 2011			③		
Xu et al. 2014					
Zhang et al. 2014					
[...]					
② Evaluation Criteria	Using hard facts	Using soft facts	[...]	Using Cross-Device Data	[...]

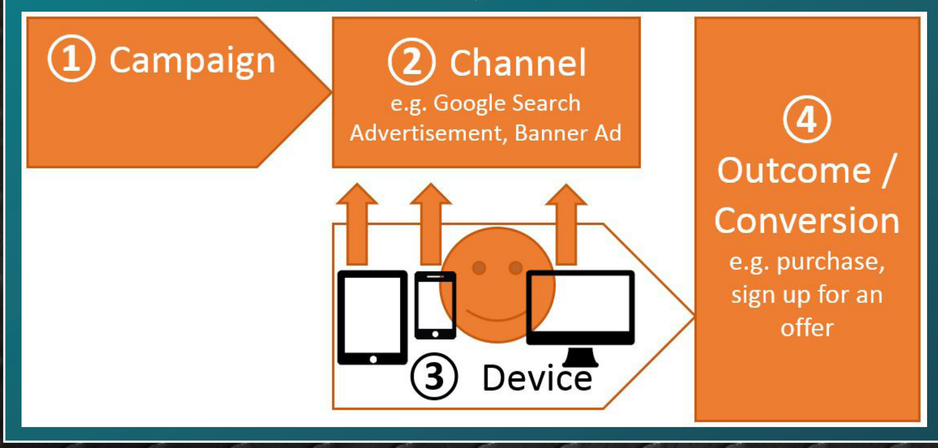
① **Identify dynamic attribution approaches** (structured literature research)
② **Determine evaluation criteria**
(mixed method approach - qualitative analysis: expert interviews)
③ **Evaluation of scientific literature** using the results from the qualitative analysis

Step II — Define data basis and build model

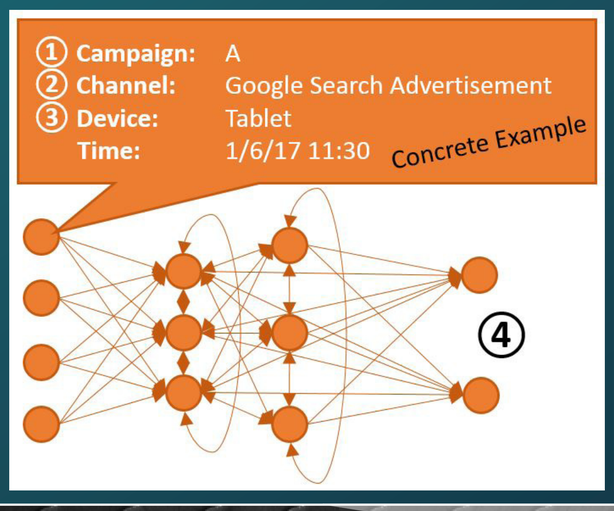
Step	Description
① Select Data	
② User Stitching	Combine all the available user tracking and touchpoints data (e.g. click on a banner advertisement) generated by accessing through various channels (e.g. google search advertisement) with different devices (e.g. mobile, tablet, PC)
③ Data Cleanup	
④ Modeling	Develop the model for displaying influences in a cross-device omni-channel environment
⑤ Datamining	Apply model to the data (mixed method approach - quantitative part)
⑥ Evaluation	Interpret results and formulate outcomes

Step III — Evaluate model results

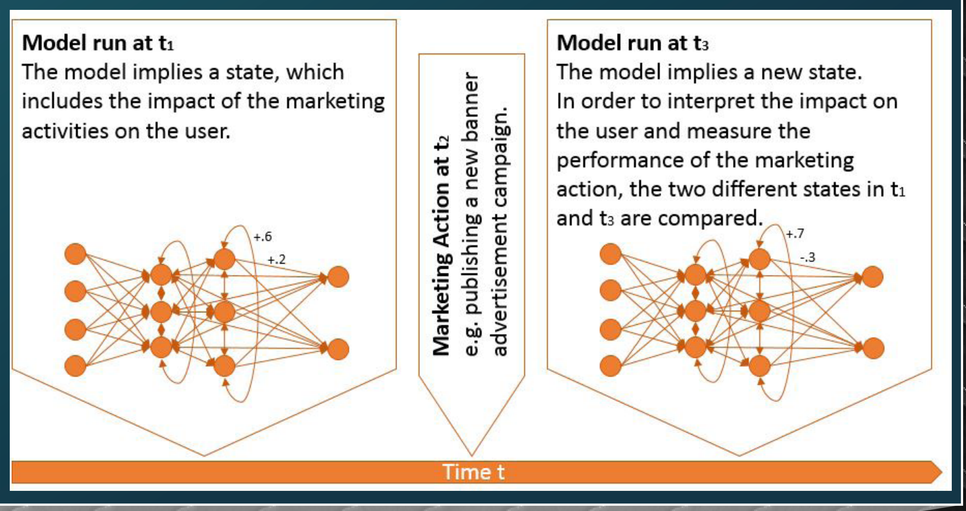
Model setup



Model setup detail view



Model run



IV Meeting of PhD Students

Valencia 01.06.2017

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Expected Results and Profits

- Profound analysis of marketing actions influences in a cross-device omni-channel environment
- Apply this knowledge of influencing factors to ...
  - understand the user's behavior.
  - evaluate the efficiency of marketing activities.
  - improve the marketing activities.
  - analyze the impact of each device class differentiated by mobile, tablet, television etc.

- Derive a proposal for optimal online marketing budget allocation within a cross-device environment.
- Develop a component for a dynamic attribution model which uses cross-device data sources.
- Present the basis for building a dynamic attribution framework.