

Cutting-edge Approach to **Conversion Attribution** by **Haensel AMS – Advanced Mathematical Solutions**

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Introduction

This project was about bringing advanced business analytics to online marketing. The task in the project was to apply and tailor our new developed conversion attribution model to the client's needs and build a dashboard tool which enables the client to leverage the attribution results in the daily work. The attribution results provide a realistic evaluation on the conversions and revenue created by certain channels, campaigns, or lower level media touch points, such as adgroups, keywords, email ID, referral domains, banners, etc. With this knowledge, the marketing investments can be optimized, targeted demand creation opportunities can be identified and marginal costs calculated. Further, we lay out that with all the new available data on the customers' onsite engagement we are opening a door towards real individual offer optimization. All these new insights can straightforward be used to optimize advertisement actions for certain customer groups, e.g. focus on new customer acquisitions with cost effective means. Or on the other hand, can the gained insights in touch point effectiveness for certain customer groups also be used to develop churn reduction strategies, to keep already gained customers engaged with the company and maximize thus their life time value.

The Client

Transavia.com is a Dutch low cost airline that offers charter flights and scheduled flights to summer and winter holiday destinations around Europe and to the Mediterranean. It is market leader in holiday air travel in the Netherlands. Transavia.com's clients consist of tour operators, which have their own internet portals available to them, as well as end consumers. Transavia was originally founded in 1965 as Transavia Holland. Since 2003, Transavia is a wholly owned subsidiary of KLM, member of the AIR FRANCE KLM Group. Some key figures from 2012: 5.8 million passengers carried, 41 destinations, 31 aircrafts and 1672 employees.

Attribution Model – brief description

Often customers visit an ecommerce website multiple times and compare products and inform themselves before buying a product, i.e. making a conversion. Nowadays, the value of a conversion is mostly still attributed to the last visit to the website, when the customer made the conversion. But prior visits to the website are also very important and have a significant influence in the buying decision. A good attribution model should hence aim to attribute the according and reasonable share of the conversion to all visits in the conversion path.

Example conversion path:



Definition of terms used:

- **session** refers to an engagement with the website
 - click-session: visit to the website
 - view-session: the view of a banner or another advertisement
- **event** refers to the page views in click sessions, each page view is a single event in a session
- **conversion path** refers to the chain of all session by a customer which are leading consequently to a conversion

Our attribution model is called “**Interaction-Type model**” and the basic idea is that the conversion path can be split into different phases, such as

- the initializer-phase, which refers to the start of the conversion path and the emphasis is on acquiring customers,
- the holder-phase, which refers to the customer in his information process,
- the closer-phase, which refers to the final sales process when the customer selected a products and buys them.

Sessions are now assigned to these different phases and are accordingly referred to of having different characteristic types, such as being an initializer type session or a closer type session. So each session can be assigned a fraction of the total initializer, holder or closer phase. In the end the conversion and the respective revenue from it is distributed over the different phases and further to the sessions and their type shares.

Our new developed interaction-type model is the first conversion attribution model which takes the customers engagement with the website into account while focusing on the interaction between sessions in the conversion path. The standard engagement based attribution models evaluate each session’s engagement and the scoring for the conversion independently of other sessions. The results are then combined with a very rudimentary time discounting approach. Further, the standard attribution models are often based on a subjective rule system with simple point counting, resulting in a large number of different parameters. Besides, please note the large data volume and velocity in web traffic and online marketing - big data is clearly not just a buzzword in this context. Hence, due the over complexity of the standard models there is often no hope to optimize a subjective initial parameter setting. Contrary, our core model is working with six base parameters, and is therefore more straightforward to adjust and to tune to the practice case at hand.

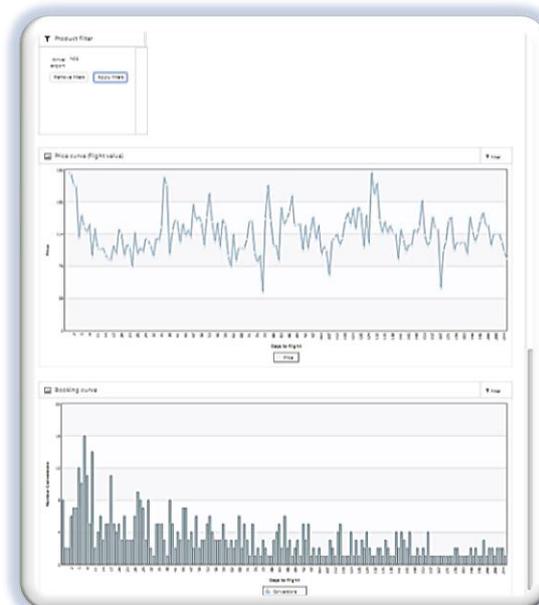
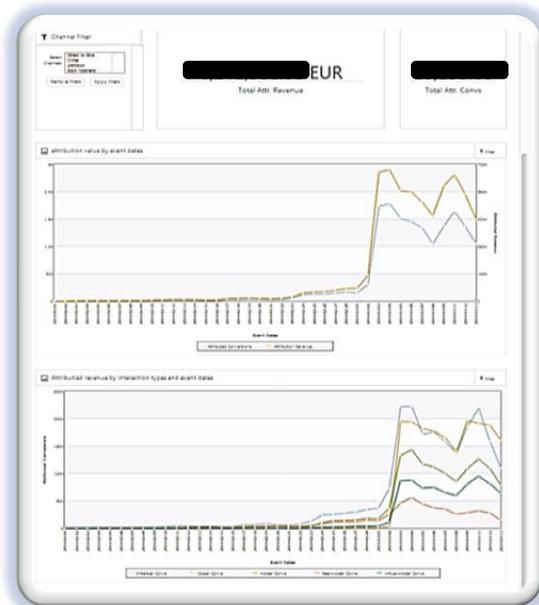
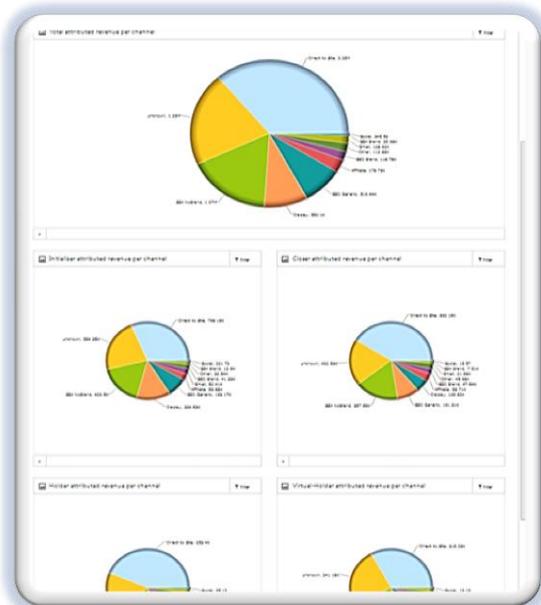
Dashboard

The dashboard is split into four main areas:

- general attribution results, total revenue and conversion attributions by channels, campaigns and lower levels; time series behavior by different date perspectives; conversion path statistics
- combined attributed revenue and cost reports: displaying results of the conversion attribution model showing KPIs of attribution results, such as profit, CPA and different ROI calculations, and further charts and tables with profit and ROI calculations by lower levels with further drill down functionality
- trend reports for attributed revenues as well as for product sales

- customer choice insights, regarding what products customers buy and also what they search: (1) analyzing booked products by number of bookings but also the respective price and booking curves, and (2) product searches where we investigate the product searches associated with certain conversions

Some example screenshots of the dashboard:



The dashboard provides the user with an understanding of the actual generated value of different campaigns and touch points. The client can unveil the effects of different marketing actions, e.g. which campaigns (or lower level: search keywords, banners, emails, etc.) are supporting mainly the initializer phase and therefore really create new demand. Or which ones are more supporting holder-types, i.e. keeping the already captured customer in the sales-interaction with the client's website. But the main advantage of our dashboard and the underlying interaction-type model is that we provide a realistic quantification of the value generated by certain campaigns and actions. The results are further combined with other input factors such as costs to compute all kinds of interesting performance KPIs. With time-series models we are further visualizing trend

behavior in order to spot opportunities as well as an early identification of potential problem cases. Further, we are providing charts which are visualizing information of booked products versus searched and viewed offers. With this we are providing top-level insights on the customers' choice behavior.

Add-on Features

Off-line Media influence estimation

The so far explained attribution model and the dashboard considers only online data without the effect of off-line media campaigns such as print, radio or TV. We have already developed several approaches to estimate the influence of non-online effects on target measures such as traffic volume, new users share or conversions. The only input which our data unconstraining algorithms require is information on the intensity and scope of the off-line campaigns. The algorithms then compute the estimated impact of these campaigns on the target measures; e.g. the print campaign XYZ during period ABC increased the new visitors by 10%, increased general sales by 5% and for certain product groups by 9% and therefore created an additional value of xxxxx EUR. Further, with sufficient provided data points it is also possible to estimate cross-media and cannibalization effects.

Merging Marketing with Revenue/Pricing Management

The new available onsite data tracking, which also collects dynamic site parameter, provides us with full insights in the individual customer choice process. We obtain the information when customers start their orientation phase and which marketing channels and touch points they are using for it. We also see what products people are initially searching and comparing vs. what they later end up buying. All this information on what product offers are seen and how they are compared, enables us to calculate real price elasticities for certain products and estimate inter-product buy-up or sell-down percentage. The top level goal is to maximize the company's revenue or profit! Therefore we need to combine the marketing and the revenue/pricing management efforts. With the advanced attribution model we can compute marginal costs of additional demand creation and make targeted investments for specific demand groups. On the other hand, with the new insights in the customers' choice process we can compute the optimal product offers and timing. An optimal revenue or profit result can only be obtained with both sides combined and jointly interacting!

Conclusion

In this project, which we have done for our client Transavia, we have developed a tailored, state-of-the-art conversion attribution system with a corresponding dashboard tool. With the attribution results Transavia is able to obtain a real evaluation of the different marketing channels and campaigns in terms of conversions and revenue. With this input it is possible to identify the value generators in your marketing efforts and quantify their actual performance in terms of profit, CPA, ROI or other KPIs. Hence, this input allows real optimization of marketing campaigns and actions. It also provides important insights on how customers engage with the website in their buying process. All this is pioneering work in marketing analytics and aiming towards smart controls to maximize touch point effects and the total revenue.