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Multi-Channel Attribution Model

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Identifying Correlations in the Customer Journey Data

The Attribution Challenge

The last few years have witnessed an exponential growth in the development of web tracking technologies, as companies have realized the potential to improve their performance through big data.

Advertisers make use of a wide variety of online marketing channels to get the attention of consumers. Take, for example, search engine optimization and pay per click campaigns, social media, mobile, video and email marketing.

At the end of the day, advertisers want to know which channels are the most effective, in order to improve their budget allocation. When advertisers invest in several marketing channels simultaneously, they typically measure an overall return on investment, namely the ratio between the increase in some company performance indicator (i.e. sales) and the total spending in marketing channels.

Here comes the problem: when you invest simultaneously in several channels, and you calculate an average return on investment, how can you tell which channels were the most effective? The evaluation of the contribution of each individual channel to the overall marketing success is called the online multi-channel attribution problem.

Today, thanks to the availability of large volumes of web tracking data, companies can disentangle the complexity of their web marketing return on investment in several channels, by making use of cutting-edge algorithms and advanced analytics tools.

The Customer Journey

We define a customer journey, or path, as a piece of the web history of an internet user involving several marketing channels, also named touchpoints.

In the language of marketing, a path can yield two possible results: a conversion or a null.

The first term refers to converting site visitors into paying customers, while the second term indicates that the user has stopped browsing the internet without making a purchase.

The online multi-channel attribution problem is about determining which channels are the most effective in concluding a path with a conversion.

The steady improvement of storage capability and computing power of the recent years have enabled data scientists to design and implement sophisticated probabilistic algorithms to capture the value inside big data.

We can visualize a collection of customer journeys as a Markov diagram, namely a graph in which each website is a point, and each arrow connecting two points is a transition from one website to another.
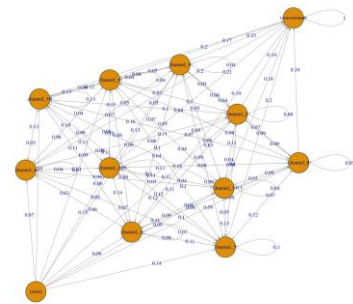
The algorithm developed by Google to sort the websites in its front page is based on this idea: a website is more likely to be on top of the list, namely more relevant, if there are many other websites containing a link to it, or equivalently, in our representation, if there are many arrows pointing to it.

We can think of the states of conversion and null as two special points in the graph: they only contain incoming arrows but no outgoing arrows. This means that they represent the end of the digital customer journey.

Multi-Channel Attribution Models

Strong interest in the development of effective channel attribution models has led to the development of several algorithms, at different levels of complexity.
Here are the most popular approaches:

- *Last Click Attribution Model:* In this model, all the credit for the conversion is given to the last touchpoint. This is the standard attribution model in the majority of web analytics tools.

- *First Click Attribution Model:* In this model, all the credit for the conversion is given to the first touchpoint: this is the opposite of the previous approach. First click attribution model is often considered less accurate than last click, because the customer can visit several websites between the first click and the conversion, and in this model they are ignored.

- *Linear Attribution Model:* In this model, the credit for the conversion is distributed equally in all the touchpoints in the path. For example, if a customer journey is made of four touchpoints, each one will be credited 25% of the conversion.

- *Time Decay Attribution Model:* This model is a middle way between last click attribution and linear attribution: each channel is credited a percentage of the conversion, but as channels get closer to the conversion, they get an increasing percentage of the credit. For example, if a customer journey is made of four touchpoints, we may attribute 10% of the conversion to the first touchpoint, 20% to the second, 30% to the third and 40% to the last touchpoint.

- *Removal Effect Attribution Model:* This is the state-of-the-art attribution model. The idea is that the importance of a channel is proportional to the decrease in total conversions when the channel is removed from the customer journey, namely the removal effect. The removal effect can be evaluated with a Monte Carlo numerical simulation, which requires high-performance computing power and efficient algorithm design in order to produce reliable results in reasonable computation time.

Data-driven Insights to Improve Performance

Deloitte Analytics is able to provide the know-how, analytics talent and technological expertise necessary to capture the value inside web tracking data.

By applying all the different attribution models to a set of historic web tracking data, advertisers will have the possibility to recognize patterns in the internet browsing habits of their customers, and answer simple questions like:

- What are the marketing channels where the customer journey begins more frequently?

- What are the websites that customers visit more frequently just before making a purchase?

- What is the role of each marketing channel in shaping the web experience and converting site visitors into paying customers?

Combining data-driven insights with industry expertise, marketers can improve the performance of their company through evidence-based decision making.

Why Deloitte Analytics

Like other companies, we can help our clients capture, manage and analyse internal and external data.

But only **_Deloitte Analytics_** has the deep industry expertise, advanced analytics capability, and understanding of decision-makers' roles to maximize its value – turning everyday information into useful and actionable insights.

Deloitte Analytics can help clients addressing complex business issues that can be defined by business outcomes and not just technology requirements

Additionally, Analytics can provide services and solutions tailored to the specific market segment your enterprise belongs to:

- **Financial Services**
- **Consumer & Industrial Products**
- **Energy & Resources**
- **Technology Media & Telecommunications**
- **Public Sector**

The Deloitte Difference:
Exceptional People and Powerful Assets

Deloitte helps our clients address these issues through the people and offerings of its Deloitte Analytics practice. Our national team of over 100 professionals has proven experience in structuring, managing, and delivering Enterprise Information Management strategies and implementation services. Through the collective experience of local practice and leveraging assets and best practices of our global WW Deloitte Analytics team, we have serve our customers with a broad array of toolkits, accelerators, models, leading-edge practices, diagnostics, and governance approaches to accelerate and improve the quality of EIM projects and ensure a focus on value creation.

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