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A Crash Course in Attribution

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Attribution Basics

How do my marketing investments drive revenue?

Attribution has long promised a solution to one of advertising's most perplexing challenges, captured perfectly in John Wanamaker's most famous musings, "Half the money I spend on advertising is wasted; the trouble is I don't know which half!"

That was over a hundred years ago. Fast forward to the present, a time when digital is ascendant, and addressability has solved many of the problems around precise measurement and traceability. Attribution came about to solve the simple question, "Which of my marketing initiatives are driving successful outcomes?"

Using attribution, marketers today can easily see which of their channels, campaigns and initiatives are working, and which ones aren't.
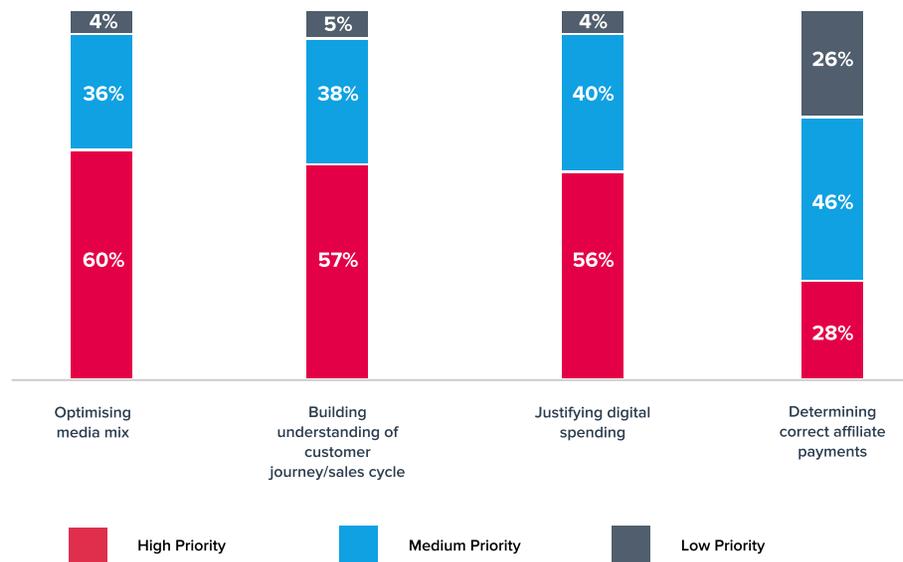
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The Applications of Attribution

Marketers apply attribution in a variety of ways

AdRoll and eConsultancy's The State of Attribution report list that, in 2017:

- 60% of marketers use marketing attribution to optimize media mix
- 57% of marketers use marketing attribution to build understanding of customer journey and the sales cycle
- 56% of marketers use marketing attribution to justify digital spend

Top goals for attribution

	Optimising media mix	Building understanding of customer journey/sales cycle	Justifying digital spending	Determining correct affiliate payments
Low Priority	4%	5%	4%	26%
Medium Priority	36%	38%	40%	46%
High Priority	60%	57%	56%	28%

■ High Priority   ■ Medium Priority   ■ Low Priority

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Attribution Models

Hold on. First off, what is an attribution model?

An attribution model is a methodology that is applied to all of a campaign's or advertiser's conversion paths in order to determine how to distribute the value of each conversion.

What does that mean practically? Let's take the example below:

Paid Search   **Display**   **Video**   **Retargeting**   **Affiliate**

Let's say you are Acme retailer, and you find that a specific user bought $200 worth of goods.

Let's then add that the user was exposed and interacted to your paid search, display, video, retargeting, affiliate initiatives exactly once before converting on Acme's website. Each of these are referred to as "touchpoints" on the user's path to conversion.

Attribution models define the mechanism for distributing the $200 credit among all the touchpoints in the user's journey to conversion. And how does it do that exactly? There are many ways, but let's first look at the simplest: single touch attribution, which is covered next.

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From Single
to Multi-touch

Single touch attribution models were the first stop on marketers' bumpy attribution journey

One of the simplest ways to distribute credit across the touchpoints of a user journey is by simply and arbitrarily choosing one of them and giving it 100% of the credit.

Attribution models that do this are referred to as **Single-Touch Attribution models.** In a single-touch attribution model, no other touchpoint in that customer journey outside of the winning touchpoint receives any credit for driving the conversion.

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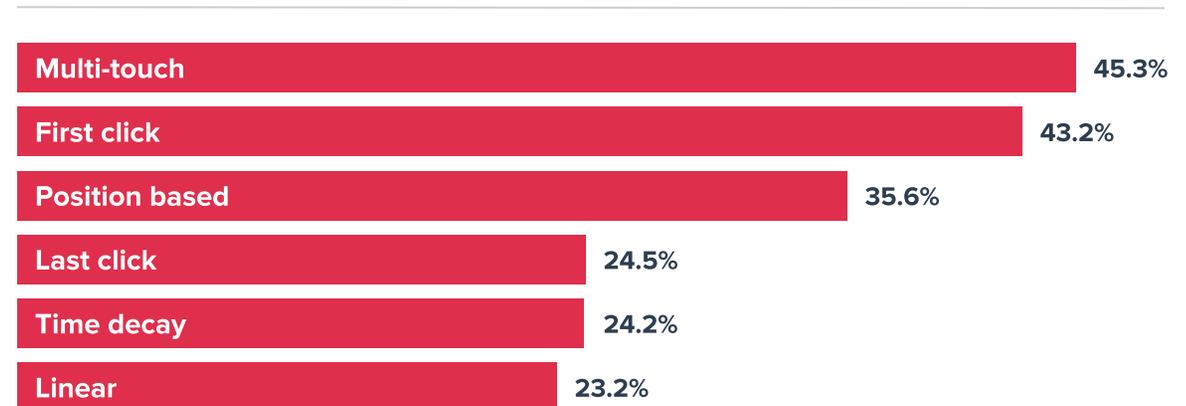by Impact

Last Click Attribution Models

One of the most common single-touch attribution model methods simply looks at the last click event that the user engaged with before they converted. This model is otherwise called **Last Click Attribution**, and is a type of single-touch attribution model.

In the early days, when marketers first adopted attribution, Last Click Attribution was often the first stop. And because many marketers never progressed beyond that first stop, Last Click Attribution continues to be in significant use today.

eMarketer reports that 24.5% of performance marketers in the US and UK still rely on last click attribution models:

What Attribution Models Do Performance Marketers in the UK and US Use?
% of respondents, Apr 2018

Multi-touch	45.3%
First click	43.2%
Position based	35.6%
Last click	24.5%
Time decay	24.2%
Linear	23.2%

45.3%

* eMarketer. 5 Charts: The State of Attribution.

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First Stop on the Bumpy Road to Attribution

Here's a visual of the Last Click Attribution Model in action. Remember our Acme example? In a last click model, 100% of the credit goes to a single winning event in the conversion path – the click from the Affiliate channel:

Paid Search	Display	Video	Retargeting	Affiliate
0%	0%	0%	0%	100%
$0	$0	$0	$0	$200
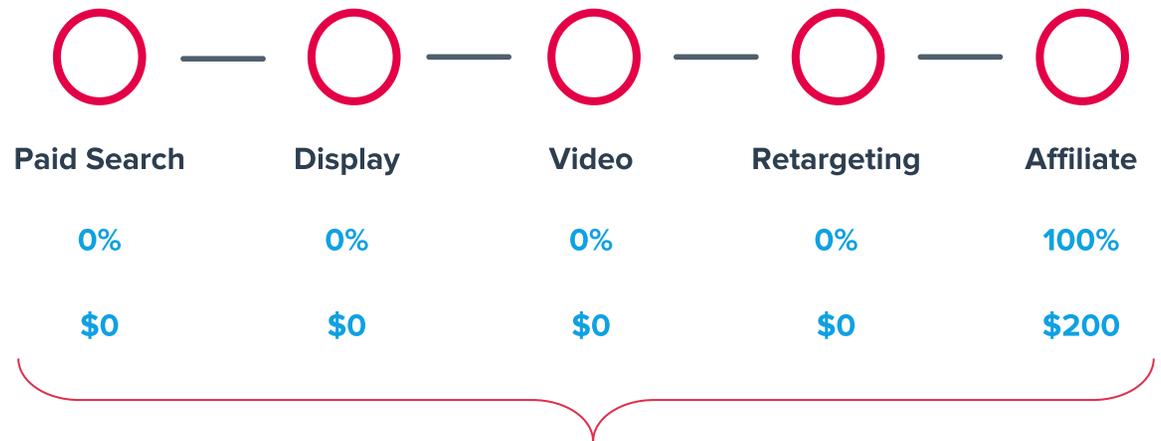
Path to conversion worth $200 in revenue

There are other types of single-touch attribution models, such as First Click, which says, "Give 100% of the credit to the very first click in the path to conversion, given a fixed lookback window." If the lookback window is 30 days, then we will only look at touchpoint events that fall within the range of 30 days before the conversion event (obviously including the day of the conversion event itself). So any touchpoint event that occurred more than 30 days before the conversion event would not qualify to be the winner of the first click attribution model contest.

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Why Multi-touch Attribution?

The Rise of Multi-touch Attribution

Savvy marketers recognized that single touch attribution was flawed. They noted that multi-channel advertising tended to amplify their messaging when working in unison, and multi-touch attribution came to recognize that multiple initiatives often provided incremental value in driving successful outcomes, so the question became "What incremental value is each of my marketing initiatives delivering?"

To answer this question, marketers needed to develop more sophisticated techniques to distribute credit across more than one touchpoint in the customer's path to conversion. They didn't have to distribute credit to ALL of the touchpoints – just more than one of them. They could, for example, give it to the first click AND last click – which would take it out of the world of single-touch attribution modeling.

Models that distribute credit to more than one touchpoint in a path to conversion are referred to as **Multi-touch Attribution Models**, and its use is certainly on the rise.

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Why Multi-touch Attribution?

As of 2018, eMarketer reports that about 85% of B2B marketers worldwide currently use or plan to use multi-touch attribution in the near-term future.

Which Data-Driven Ad and Marketing Tactics Are B2B Marketers Worldwide Using?
% of respondents, Sep 2018

Creating actionable data-driven insights

| 56% | 35% | 9% |

Personalized experiences across digital channels

| 48% | 38% | 14% |

Cross device targeting

| 47% | 39% | 14% |

Real time optimization of campaigns

| 46% | 38% | 16% |

Multichannel attribution

| 41% | 44% | 15% |

1:1 targeted customer engagement strategies

| 38% | 44% | 18% |

Predictive analytics

| 35% | 49% | 17% |

Personalized experiences across digital and offline channels

| 33% | 43% | 23% |

🟥 **Currently use**
🟦 **In our plans for the next 12-24 months**
⬛ **No plans to implement**

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* eMarketer. 5 Charts: The State of Attribution.

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The Flavors of Multi-touch

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Multi-Touch Attribution Models dramatically enriched the attribution universe

Different multi-touch attribution (MTA) methodologies came about, seeking to answer questions around how to most fairly distribute credit across multiple players. What appears fair to one channel, after all, might not be fair in the eyes of another channel.

Two primary types of multi-touch attribution modeling techniques emerged, often portrayed as polar opposites of each other:

Static/Rules Based

Multi-touch Attribution Techniques
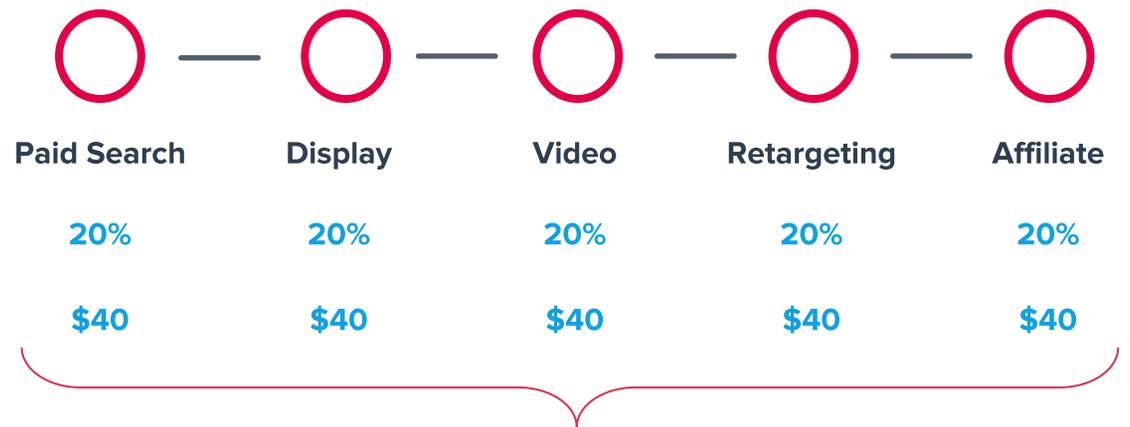
Dynamic/ Machine Learning
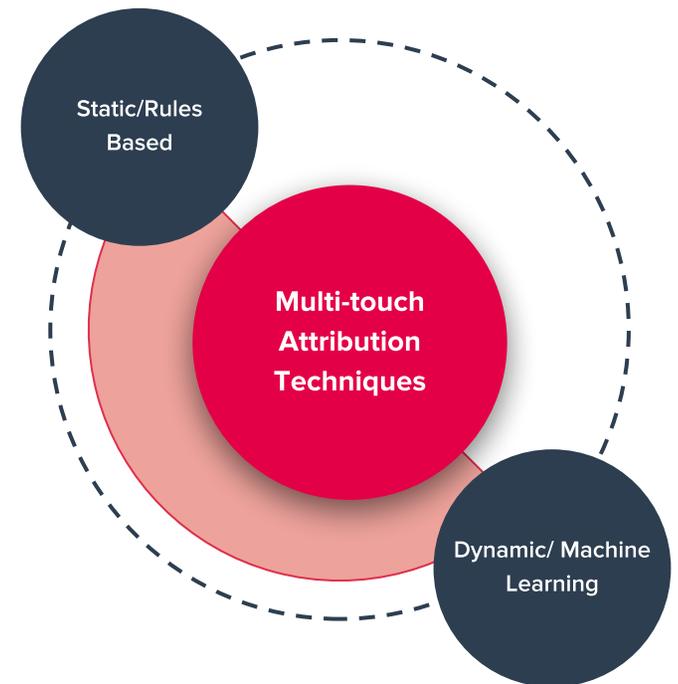
Rules Based

Static or Rules-based. Rules Based is a simple static set of rules that assign value to touch points along the conversion path. In static, or rules-based attribution, the marketer selects a simple, pre-defined, unchanging algorithm, or formula, to assign value to different touch points along the purchase path, usually based on factors such as their position in the conversion path, and the time elapsed between the touchpoint event and the conversion event. The results are aggregated to see which source is contributing the most to revenue.

One of the simplest types of Static or Rules-based model is called the Linear Model (also called an Even Model). In the Linear attribution model, credit is distributed evenly across all the touchpoints in the customer's path to conversion.

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Rules Based

Going back to our previous Acme example, let's apply a linear attribution model to that $200 conversion. In this case, the $200 is evenly credit to each channel touchpoint: $40 to paid search, $40 to display, and so forth. That same attribution model is applied to every single converting customer journey to assess the value of each channel.

Paid Search	Display	Video	Retargeting	Affiliate
20%	20%	20%	20%	20%
$40	$40	$40	$40	$40

Path to conversion worth $200 in revenue

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Why the Rules Based World Is Not Enough

Rules-based attribution models are great in many scenarios

Rules-based attribution can deliver a good view to marketers getting started on multi-touch attribution. Rules-based models, like linear, are simple enough to be explained. More advanced mathematical models can be applied – such as a log function that applies a decay function based on time from conversion – an attribution model Altitude calls an Exponential Time Decay Model. Despite the complexity of the math, because the rule doesn't change, these complex rules-based models are still considered static algorithms.

Static algorithms carry with it some fundamental design flaws that may hold many seasoned data-driven marketer back:

1. They rely on assumptions that may appear somewhat arbitrary.
2. They cannot accurately take into consideration external factors such as seasonality or economics into its computations.
3. They can also be gamed by 3rd parties who can impression–bomb audiences with a high propensity to convert.

As a result, many expert marketers have turned to more sophisticated attribution techniques….

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The Rise of Machine Learning Attribution

Dynamic or Machine Learning. Machine learning, on the other hand, is a sophisticated dynamic data driven model that DOES take external factors into consideration and is less susceptible to gaming. The dynamic model, sometimes referred to as machine learning attribution, uses advanced mathematical modeling to derive the best answer to the question of what works and what doesn't.

Instead of relying on fallible human assumptions, it's grounded in hard, factual data. Because of that, the strength of any machine learning model is a function of the type and quality of data that is used, as well as the type of algorithm applied, such as Markov Chain, Cooperative Game Theory, Non-linear Regression, etc…
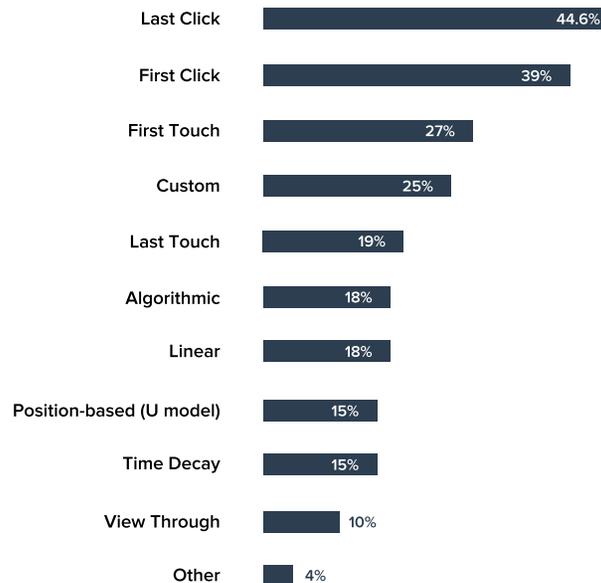
Machine learning is a complex but fascinating field that is constantly evolving, and new and ever more innovative techniques are being applied all the time. To get a sneak peek into Altitude's machine learning attribution model, we recommend you check out or eBook, How Machine Learning Attribution Works.

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Frequency of Use

According to AdRoll and eConsultancy's The State of Attribution report list that, in 2017:

- About 18% of respondents leverage more complex algorithmic attribution methods
- Interestingly, about 25% leverage a custom attribution model. One would assume that custom can only be applied to rules-based models, but tools such as Altitude also allow expert marketing professionals customize their algorithmic models.

What specific methods do you use for marketing attribution (2017)?

Method	Percentage
Last Click	44.6%
First Click	39%
First Touch	27%
Custom	25%
Last Touch	19%
Algorithmic	18%
Linear	18%
Position-based (U model)	15%
Time Decay	15%
View Through	10%
Other	4%

* AdRoll. The State of Marketing Attribution 2017.
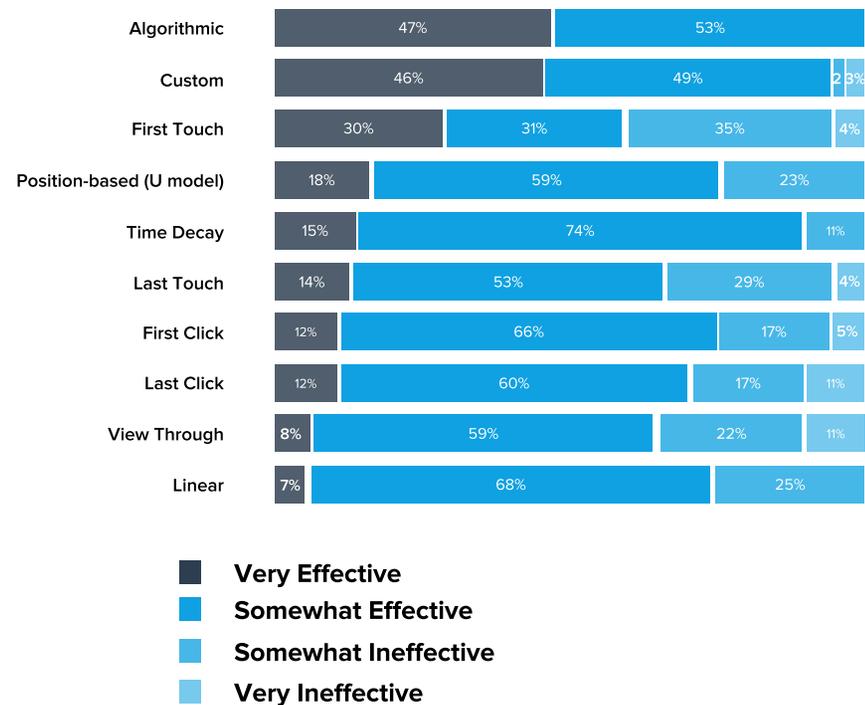
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Effectiveness of Models

Despite the lower prevalence of algorithmic attribution models in the wild, according to the same AdRoll and eMarketer survey, 47% of respondents find algorithmic attribution very effective, and the remaining 53% find in somewhat effective. None of the respondents found it ineffective.

These are astounding results.

At Impact, we strongly believe in the power of data science and the ability of algorithmic techniques to transform your business.

Agency Respondents

Model	Very Effective	Somewhat Effective	Somewhat Ineffective	Very Ineffective
Algorithmic	47%	53%		
Custom	46%	49%	2%	3%
First Touch	30%	31%	35%	4%
Position-based (U model)	18%	59%	23%	
Time Decay	15%	74%	11%	
Last Touch	14%	53%	29%	4%
First Click	12%	66%	17%	5%
Last Click	12%	60%	17%	11%
View Through	8%	59%	22%	11%
Linear	7%	68%	25%	

■ **Very Effective**
■ **Somewhat Effective**
■ **Somewhat Ineffective**
■ **Very Ineffective**

* AdRoll. The State of Marketing Attribution 2017.

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Conclusion

Attribution is a Key Component of Marketing Intelligence

We hope you've enjoyed this whirlwind course on marketing attribution. If you've read and digested this eBook well, you now have a solid foundation of, not only the key concepts and ideas of marketing attribution, but also a solid appreciation of how the field has evolved over the years. The field of attribution is rich, deep and constantly innovating, and just like your 100-level university survey courses, what we've covered here is intended to be broad and comprehensive. But now is your opportunity to go deep.

We encourage you to check out our other Attribution-related eBooks:

- How Machine Learning Attribution Works
- The Hidden World of Machine Learning Attribution
- 5 Ways To Tell You Have the Right Attribution Model
- How to Address the Challenges of Modern Day Attribution

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About Altitude

Altitude cleanses, aggregates, and standardizes the huge amount of information from your varied marketing channels—in real time. Use our analytics suite or yours to mine this up-to-the-moment data pool for insights into the full consumer journey, from general trends and KPIs to individual behaviors. Leverage our machine-learning algorithms to optimize media across channels and devices. Armed with knowledge that is both deep and broad, you'll make the decisions that drive growth most effectively.

Contact sales@impact.com or visit impact.com/altitude to learn more!

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