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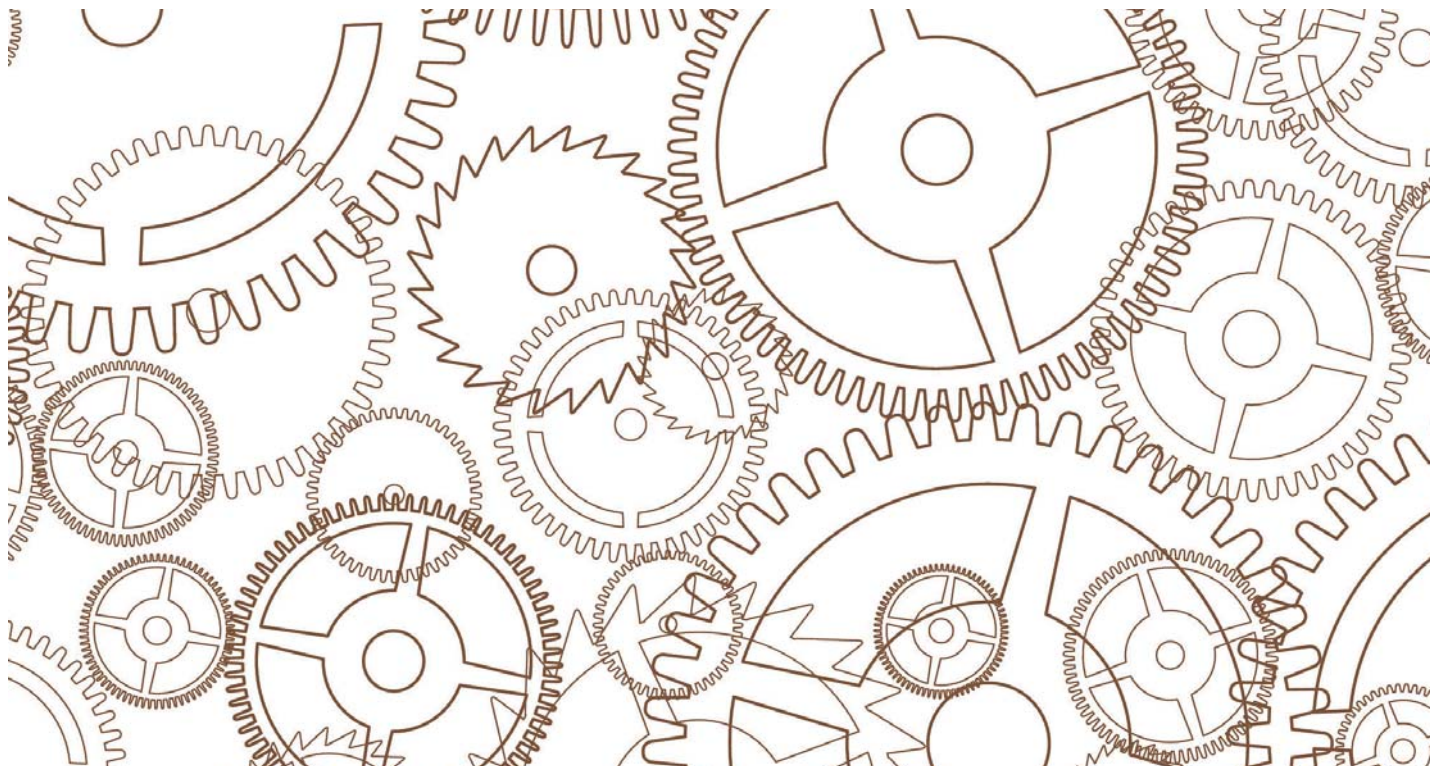
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Best practices in algo wheel design and implementation

Alistair Cree of FlexTrade discusses the evolution of algo wheels and how they can be used to apply a philosophy of continuous improvement to the trading process

Q How have algo wheels developed in the last decade?

A Algo wheels are the application to trading of the idea of randomised controlled trials, which originally comes from the natural sciences. When you have some new innovation in the healthcare space, for example, you have to make sure that a new treatment actually works and improves outcomes for patients. In the case of finance, this translates into the outcomes for orders. Trials are run by splitting the orders into two groups; a treatment group and a control group. That's done at random so you know that any difference between those groups is due to the treatment itself and not because one group contains a higher number of more difficult orders. This means that when you look at the cost or performance of your orders, you can



Alistair Cree
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Alistair Cree is product manager for TCA, analytics, and algo wheel at FlexTrade. He joined FlexTrade in 2018, having previously worked in various roles within ITG's Analytics department. He holds a BA in Natural Sciences from the University of Cambridge.

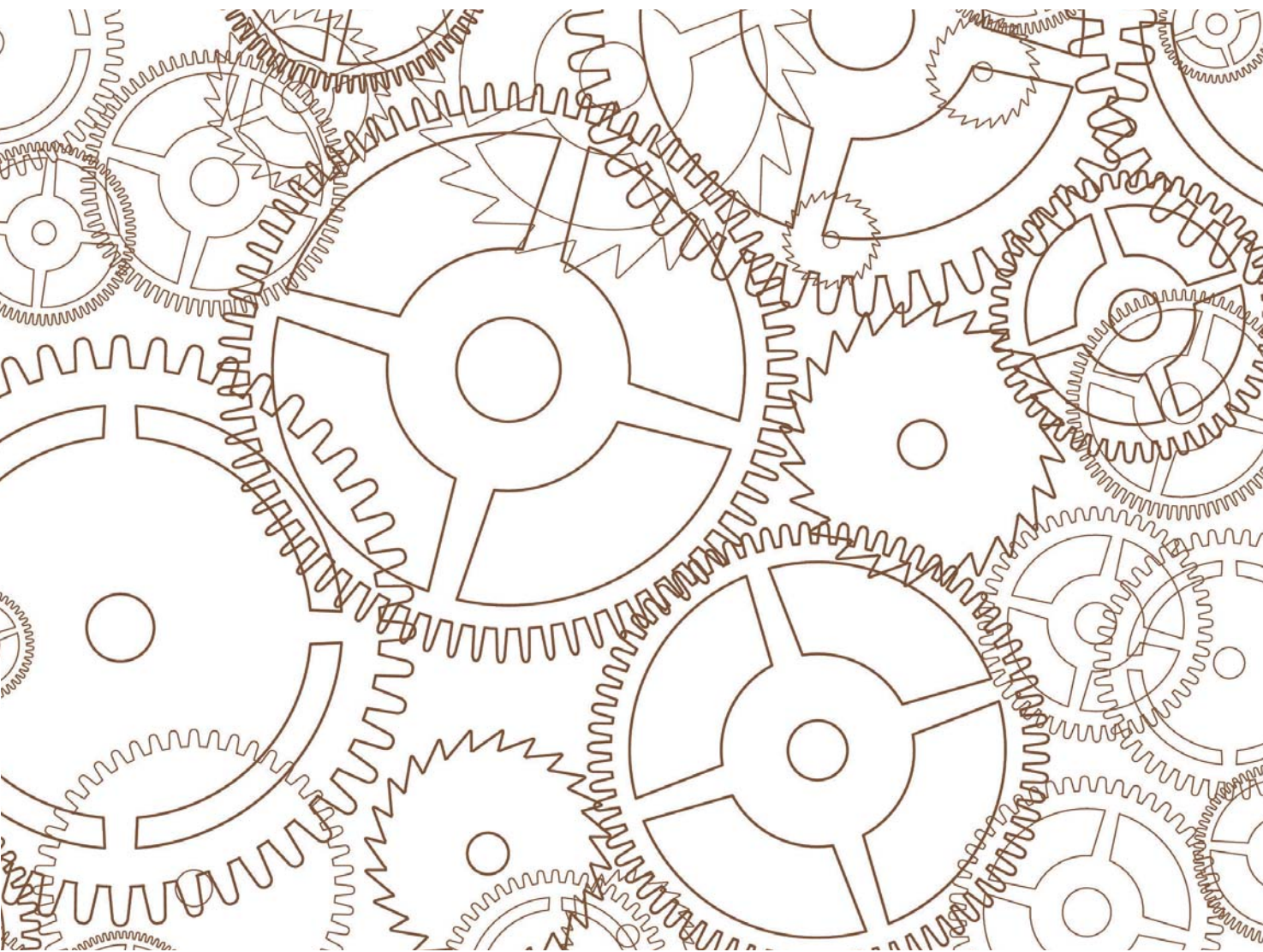
be confident that the difference that you see in the outcomes between those two groups is due to whatever intervention was made.

Trading is broadly moving in step with trends in other industries to become more quantitative, and that signals the use of more rigorous evaluation techniques, of which the randomised control trials are really the gold standard. They generate the best possible data you can get to work with to answer questions about whether an intervention is effective.

In trading, this mode of evaluation has evolved from looking very

narrowly at the questions of broker selection inequities towards the idea that more and more aspects of the trading process can be standardised and evaluated in this way.

Initially, the idea was to standardise your broker's algo offerings into a few groups that could be used interchangeably. Rather than sending an order to a particular broker's algo, an order can instead be sent to an IS algo, VWAP algo destination. Then, behind the scenes, the choice of broker can be randomised. You can determine, with some degree of confidence, that any difference in the performance of the orders sent to those two brokers is really down to the selection of the broker themselves and not down to the market conditions, order characteristics, or some other decision made which affected the difficulty of the order.



Q How does trade automation feed into this conversation?

A The first generation of algo wheels would just look at broker selection. This is a relatively straightforward decision and the trader still needs to be fairly closely involved in deciding which wheel to use. Traders make lots of other decisions as well: they select the algo; they select the algo parameters. Additionally, the trader also makes higher-level decisions which are perhaps a little more difficult to pin down, including the urgency of the order, how aggressive they want to be, or whether they want to weigh more heavily towards closing auction or trade throughout the day. So trading automation really starts to come into this once you have people applying the same ideas not just to the question of broker selection,

but also to the question of algo selection and to some degree the questions around urgency.

Much of this comes down to identifying a subset of relatively simple orders that can be automated. For example, these could be identified by the order size, market conditions,

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or some other set of criteria. Once defined, these orders can be sent into an algo wheel and the choice of broker randomised. This marks the first point at which trade automation starts to kick in because at that point a good chunk of the life cycle

of the order has been automated.

Once automated, you can begin collecting data on the process. Using that data, you can refine the process. For example, you start by sending all of your orders that are under 5% of ADV to a VWAP wheel, and then you introduce into that wheel a split between VWAPs that include the closing auction and VWAPs that try to complete before the close. Looking at the performance of those two groups, some orders for a particular portfolio manager may perform better including the close or not. You can then split your wheel based on the portfolio manager. This iterative process will eventually result in quite a complicated structure, and that's what we've seen the most sophisticated firms doing in this space. HEM