

An introduction to measuring trading costs - TCA

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BUILDING THE NEW BUYSIDE™



Agenda

● Introduction to TCA

- What is TCA?
- Why is it important?
- Integrating TCA into the investment process

● Best Execution across the investment process

- TCA for fund managers
- TCA for the trading desk
- TCA to measure brokers
- TCA for compliance and management

● The essential TCA checklist

What is TCA?

● **Transaction Cost Analysis (TCA)**

- Measuring and analysing the factors which affect the price an order is executed at
- Usually involves taking time-stamped data at various points through the investment and trading process, and comparing it to the price of the equity in the market at the time, as well as an overall benchmark for the trade
- The goal of analysing and understanding trading costs is to define where unnecessary or disproportionate costs arise
- TCA is an important part of the ongoing feedback loop to measure trading costs, so that they can be reduced

Why is TCA important?

● **Best Execution**

- Trading in the most efficient way possible in order to preserve alpha, reduce costs & improve fund performance
- A process rather than a 'price'

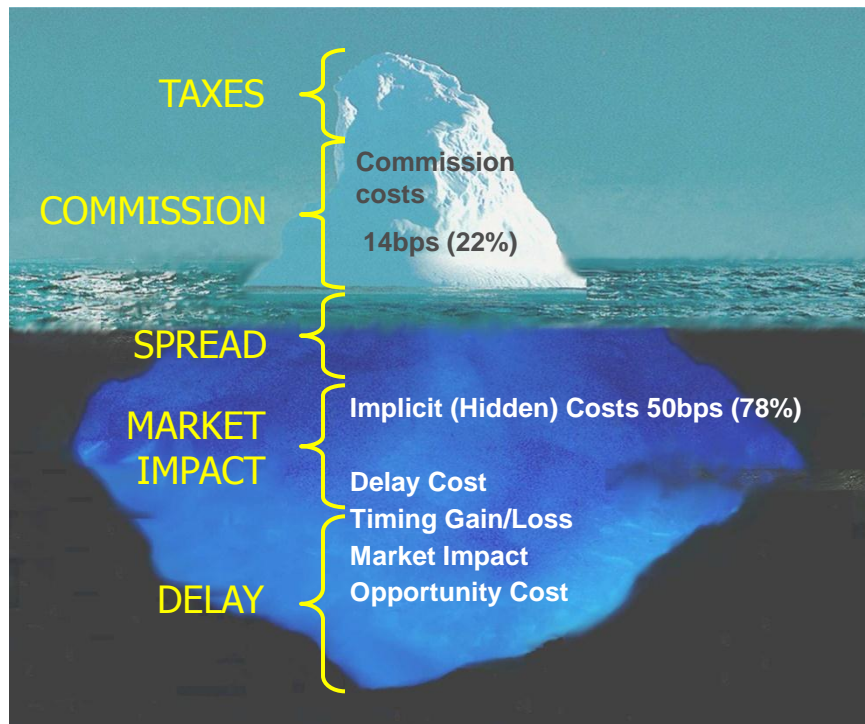
● **Has a significant impact on fund performance**

- Absolute terms (dollars under management) – eg US\$24mm saving in 1 year for a \$2bn fund
- Relative terms (fund's performance against peers) – a move of a decile in rankings by improving trading efficiency

● **Focus area for industry practitioners and regulators globally**

- MiFID regulations (Europe) & RegNMS (US) mandate Best Execution
- Many global pension funds & plan sponsors now require proof of trade cost management policies before investing with a chosen fund manager

You can't manage what you don't measure



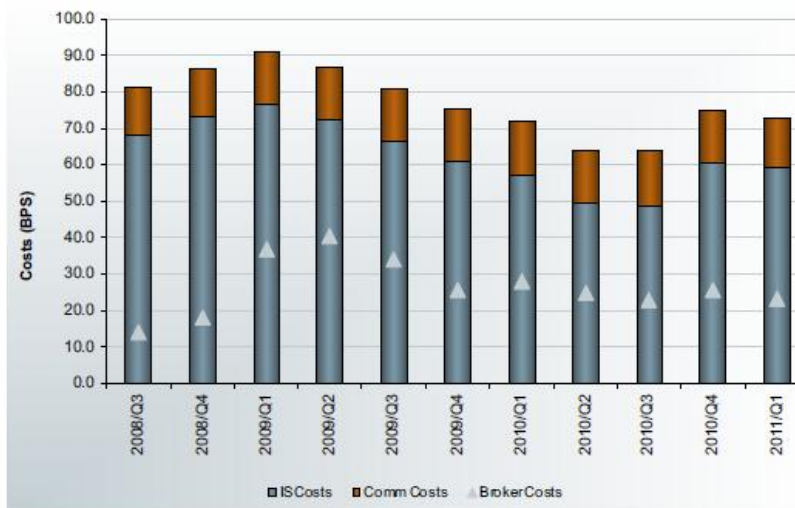
Source: ITG's global trading cost review available at www.itg.com

• What are trading costs?

The difference between the price when the decision to trade was made, and the average price of executing the order

- (a) Explicit / 'Visible' costs such as brokerage/commission fees and taxes – **only 20%**
- (b) Implicit / 'Hidden' costs including market impact and delay (timing costs) costs – **around 80%**

Asia Ex-Japan Trading Costs



How to save your fund money

ITG Peer Analysis of trading costs in Q2 2010 shows:

- average cost = 50bps
- standard deviation = 40bps

For the same fund with US\$2bn AUM and 75% annual turnover:

With poor execution: average cost = 90bps per trade (50 + 40)

Total cost of execution = 90bps x 2 (buy & sell) x 1.5bn = \$27million of cost or 1.35% of overall fund value

With average execution: average cost = 50bps per trade

Total cost of execution = 50bps x 2 x 1.5bn = \$15million of cost or 0.75% of overall fund value

With good execution: average cost = 10bps per trade (55 – 40)

Total cost of execution = 10 x 2 x 1.5bn = \$3million of cost or 0.15% of overall fund value

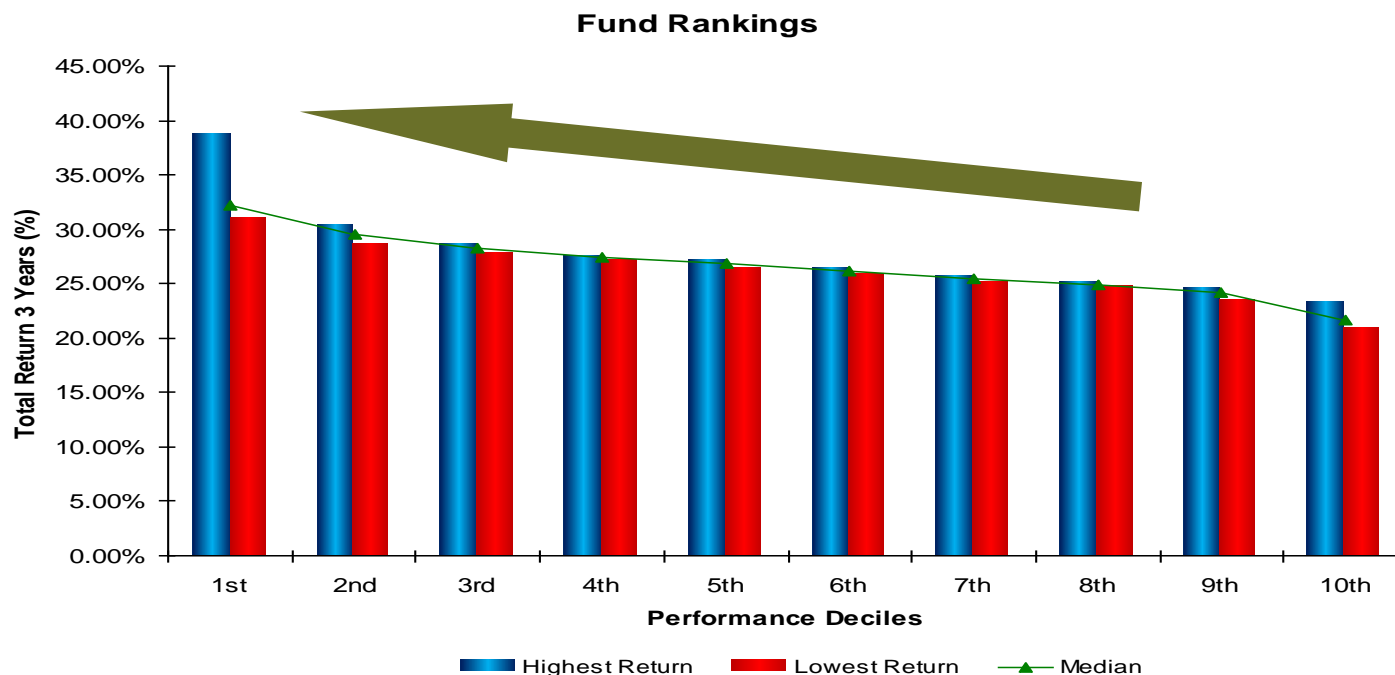
**Cost
saving of
\$24million
per
annum or
1.2% of
fund value**

between a well
executing and a
poorly executing
fund



How to improve your performance v competitors

- Annualised cost savings can make a big difference in peer group ranking
- Analysing Australian funds over 3 year period - reducing trading costs from the 70-80bps range to the 30-40bps) range can move a fund over a decile up in fund rankings *with no change to investment strategy*



Source: Intech

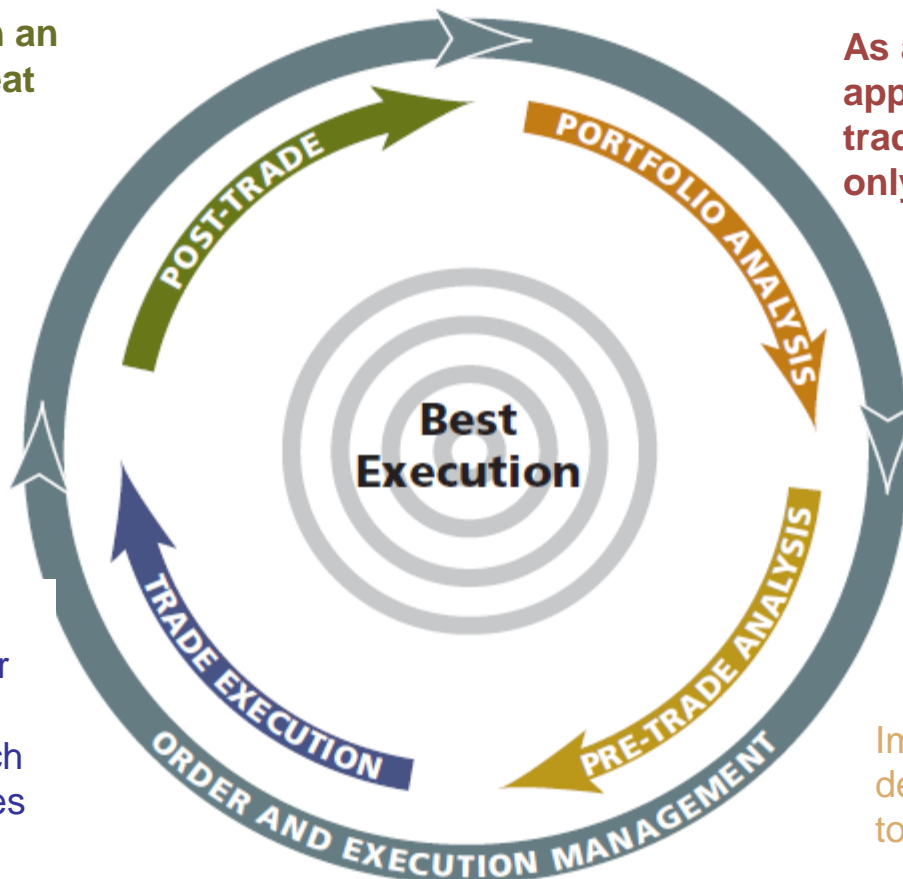
Best Execution across the investment process

Integrating TCA to the investment cycle

Review performance on an ongoing basis and repeat process

- Measure costs and attribute to cause
- Decide on benchmark and TCA method
- Understand whether costs are 'normal' or disproportionate

Make technology work for you – select algorithms and/ or dark liquidity which suit your trading objectives



As a broad rule: approximately 80% of trading costs come from only 20% of the trades

Integrate Pre-trade Cost analysis into portfolio construction & Alpha decisions

Implement your investment decision using advanced trading tools and /or broker desks

Evaluate, select and maintain brokers based on trade performance. CSAs can be used to pay for other services

Where costs arise across the process

1) Fund Manager/ Investment Decision

- Timing Costs
- Momentum

2) Trading Desk

- The trade off between speed and market impact
- Algorithm performance
- Identifying outliers

3) Broker

- Impact Cost
- Value versus Volume

1) Fund Manager/ investment decision

Typical costs arise when:

- Orders are released to the trading desk in pieces (phased release), resulting in timing costs
- Fund managers place constraints on trading desks (eg limit or participation constraints), reducing the options for trading optimally
- Adverse stock movements due to the timing of the investment decision erode alpha

How TCA can help:

Custom analysis is focused on the behaviour of the fund manager or investment decision

- Goal is to identify cost-generating trends and improve Desk/PM communication
- Report reviews short-term alpha (30 days) before and after implementation
- Looks in aggregate at stock selection alpha profile and
- The market momentum affecting order decisions
- Can be analysed by fund manager or by fund

In practice:

- **Recommendations can be made around order timing which can save millions of dollars on annual performance**

Manager timing costs in action – a practical example

Over 500bps of cost was incurred on this sell order

The cause of the timing costs was phased release – 3 separate blocks of orders sent over a week



A recommendation was made to give information about full order size to the trading desk to allow them to advise if prices were moving away, or choose to get done quicker. This could save US\$100mm annually for the fund

2) Trading Desk

Typical costs arise when:

- Performance is affected by trader timing decisions
- Trading style does not match investment approach
- Market responds to the order and moves away (market impact)

Timing costs will be highly correlated with short term momentum

How TCA can help:

Focus of the analysis is on the trading desk

- Helps traders select the best tools eg high touch vs. low touch execution channels
- Fits the specific stocks' alpha profile to trading strategy
- Looks at high cost trades to see if any lessons can be learned

In practice:

- Enables the trading desk to operate as a value added function, not just a cost centre
- Specific trading decisions and strategies can be reviewed to eliminate costs or improve processes

Identifying outliers – a case in point

A thorough analysis of outlier trades ensures that poor performance can be addressed... or justified



In example 1, order was with the desk for over 1 month despite being only 19% of ADV. This was identified through consultation as problematic (limit imposed was too low) & addressed through communication between desk & PM



In example 2, what looks like poor trader timing was found to be due to a news announcement the trader could have no control over – not a persistent problem

Broker Analysis

- **Focus of the analysis is on brokers' execution**

- Help communication between trading desk and brokers
- Measures brokers' impact costs
- Measures volume vs. value

- **Brokers' Impact**

- Brokers are expected to execute over the time horizon of up to 1 day
- Brokers give rise to impact costs, but not timing costs

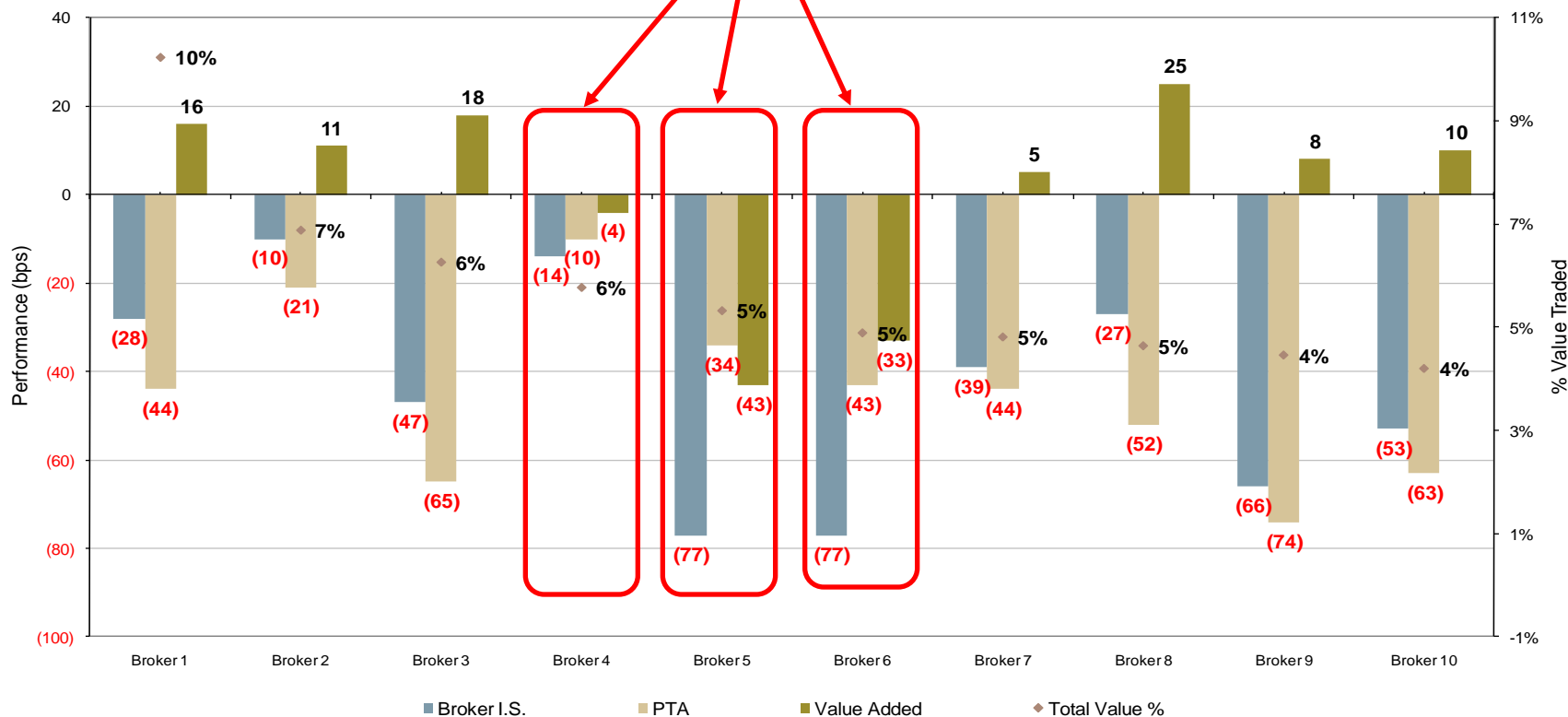
- **Bring volume of trades sent to brokers in line with value they deliver**

- The aim is to create a correlation between the amount of flow and performance
- Compare commission rates to peers
- Review different types of execution venues

Broker Analysis

Some brokers are being given a lot of the flow but not adding performance value

Brokers Performance (Top 10 by Value Traded)



TCA for Compliance







Monitors prices and performance of all trades against multiple benchmarks & provides an important record to maintain an audit trail

Required in some regions by regulation, this is an important component of best execution

| ITG TCA [®] | | | | | | | | | | 06/30/2009 | | | | | | |
|------------------------------|---------------------------|--------------------|----------------|-----------------------------|------------------------|--------------|--------------------|-------------------------|-----------------------------|------------------------|---------------|-----------------------------|---------------------------|-----------------------------|--------------------|------------------|
| Trader: Daily Summary Report | | | | | | | | | | Sample Client | | | | | | |
| Daily Cost Information | | | | | | | | | | | | | | | | |
| Daily | | | | MTD | | | | YTD | | | | | | | | |
| Perf vs Arrival Price * | | Perf vs VWAP | | Perf vs Arrival Price * | | Perf vs VWAP | | Perf vs Arrival Price * | | Perf vs VWAP | | | | | | |
| Bps | P&L | Bps | P&L | Bps | P&L | Bps | P&L | Bps | P&L | Bps | P&L | | | | | |
| -108 | -733,473 | -27 | -186,837 | -48 | -4,847,157 | -2 | -245,319 | -31 | -12,964,896 | 18 | 7,350,761 | | | | | |
| Daily Trading Statistics | | | | | MTD Trading Statistics | | | | | YTD Trading Statistics | | | | | | |
| Country | Shares | Value Traded (000) | Net Flow (000) | Perf vs Arrival Price (bps) | Country | Shares | Value Traded (000) | Net Flow (000) | Perf vs Arrival Price (bps) | Country | Shares | Value Traded (000) | Net Flow (000) | Perf vs Arrival Price (bps) | | |
| US | 1,432,500 | 56,534 | 19,325 | -107 | US | 19,958,351 | 571,005 | -73,660 | -76 | US | 145,653,927 | 2,889,428 | 24,775 | -37 | | |
| NON-US | 4,123,599 | 13,771 | -8,331 | -114 | NON-US | 61,040,787 | 471,776 | -334,532 | -12 | NON-US | 236,848,033 | 1,411,149 | -125,253 | -18 | | |
| Daily Trades Information | | | | | | | | | | | | | | | | |
| High Cost Orders | | | | | | | | | | | | | | | | |
| Order No. | Order Start Date and Time | Days To Completion | Ticker | Trader | Country | Side | Value Traded (000) | Shares | Trade % DV | Exec. Price | Arrival Price | Perf vs Arrival Price (bps) | Perf vs Arrival Price P&L | VWAP Price | Perf vs VWAP (bps) | Perf vs VWAP P&L |
| O11221 | 6/24/2009 10:11:00 AM | 5 | TOD | Trader C | IT | Buy | 905 | 15,961 | 33.35% | 56.71 | 52.28 | -796 | -66,413 | 55.26 | -265 | -23,395 |
| O11075 | 5/27/2009 12:18:00 PM | 23 | TKA | Trader E | AT | Buy | 36 | 2,320 | 0.13% | 15.43 | 14.29 | -681 | -2,259 | 14.94 | -255 | -883 |
| O11011 | 6/24/2009 2:16:00 PM | 5 | 4817 | Trader F | JP | Sell | 515 | 671 | 6.43% | 767.28 | 830.69 | -620 | -34,560 | 786.10 | -124 | -6,527 |
| O11071 | 5/14/2009 6:03:00 PM | 32 | WMI | Trader A | US | Buy | 1,457 | 51,800 | 1.84% | 28.14 | 26.60 | -506 | -69,731 | 28.03 | -39 | -5,654 |
| O11103 | 6/25/2009 9:27:00 AM | 4 | MDT | Trader A | US | Buy | 135 | 3,900 | 0.05% | 34.69 | 33.44 | -367 | -4,791 | 34.60 | -25 | -339 |
| O11104 | 6/29/2009 9:37:00 AM | 2 | MMM | Trader A | US | Buy | 24,403 | 402,900 | 6.11% | 60.57 | 58.96 | -231 | -549,150 | 59.89 | -113 | -273,760 |
| O11195 | 5/27/2009 5:39:00 AM | 25 | FSI | Trader E | US | Sell | 0 | 100 | 4.76% | 1.40 | 1.50 | -214 | -3 | 1.33 | 488 | 7 |
| O11009 | 6/18/2009 10:39:00 AM | 9 | AIX | Trader F | AU | Sell | 1,830 | 1,700,000 | 35.36% | 1.08 | 0.00 | 0 | 0 | 1.06 | 69 | 12,492 |
| O11231 | 6/30/2009 11:43:00 AM | 1 | OGKC | Trader B | RU | Sell | 17 | 275,653 | 0.00% | 0.06 | 0.00 | 0 | 0 | 0.00 | 0 | 0 |
| O11236 | 6/11/2009 12:45:00 PM | 13 | KRKG | Trader E | SI | Sell | 325 | 3,305 | 29.47% | 98.19 | 101.32 | 0 | 0 | 97.97 | 54 | 1,747 |

The essential 'checklist' for transaction cost analysis

To get the most out of TCA your tools must :

- Analyse the complete data set to give you the full picture 
- Capture time stamp information to measure leakage at each stage of the investment process 
- Allow comprehensive peer group analysis 
- Give you a choice of the best benchmark for your needs 
- Enable frequent data analysis 
- Be both tactical and strategic, integrated into the overall trading *process* 

This will enable you to identify problem areas and reduce trading inefficiencies and costs

Questions?

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