

**GFXC Request for Feedback – April 2021**

Attachment B: Proposals for Enhancing Transparency to Execution  
Algorithms and Supporting Transaction Cost Analysis

# Proposals for Enhancing Transparency to Execution Algorithms and Supporting Transaction Cost Analysis

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## 1. Background

This Note outlines the key findings and proposals identified by the GFXC's Working Group on Algorithmic Trading and Transaction Cost Analysis ('Algo/TCA working group', the 'working group').<sup>1</sup> The working group's mandate can be found in the [GFXC Priorities for the 3-Year Review](#) and states that 'while the Code has material on algorithmic execution already, there was general feedback that this should be reviewed, and that relatedly consideration should be given to providing more guidance around transaction cost analysis (TCA) for increasing transparency. As discussed at the May 2019 GFXC meeting, the trading logic of algos and the associated 'guardrails' are a related area for review.'

An FX Execution Algorithm can be defined as an automated trading program designed to buy or sell a predefined amount of foreign exchange according to a set of parameters and instructions, with the objective of filling the order. At the most basic level, a computer program automates the process of splitting a larger order known as the 'parent order' into multiple smaller orders known as 'child orders', and executes them over a period of time separately rather than all together.<sup>2</sup> In this Note, the term Execution Algorithm (EA) is used alongside algorithmic execution/trading as well as the abbreviation 'Algo'.

The Code specifically addresses algorithmic trading in Principle 18, which states that providers should be appropriately transparent about how they operate. It is mentioned, among others things, that a provider should disclose sufficient information to enable the client to evaluate the performance of the execution. Clients are encouraged to use the disclosed information and data in doing so. However, there is no mention of Transaction Cost Analysis (TCA), which assesses the trade execution by comparing the traded price of the parent order or its child orders against a benchmark.

Thus, data provision by Algo providers to enable clients to analyse the trade execution (TCA and data availability) was one key area of focus of the working group. The three others were control mechanisms and liability around the use of execution algorithms; identifying and managing conflicts of interest by market participants providing algorithmic trading services; and improving disclosures and user education. These four workstreams were identified by the working group's members in March 2020 after a questionnaire-based information gathering exercise had been conducted among them in February 2020. After a temporary halt of the working group's activities due to the financial market turbulence associated with the COVID-19 pandemic, the topics were discussed between September 2020 and January 2021. In doing so, the working group also considered the findings of the report [FX execution algorithms and market functioning](#) submitted by a Study Group established by the Markets Committee at the Bank for International Settlements (BIS), which was published in October 2020. The main findings of the working group and its proposals to address these findings were presented at the GFXC meeting in December 2020. This Note fleshes out those proposals, as endorsed by the GFXC at its 29 March 2021 meeting, and presents the associated deliverables meant to support market participants.

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<sup>1</sup> The working group is composed of Matt Clarke, XTX Markets; Michael Dawson, Shell; John Estrada, Credit Suisse; Stephane Malrait, ING (co-chair); Mayte Rico Fernández, Banco de México; Jodi Schenck, Citibank; Alex Shterenberg, Barclays; Richard Turner, Insight Investment; Alvin Teo, Monetary Authority of Singapore; Marcel Zimmermann, Swiss National Bank (co-chair). A project management office consisting of Benjamin Anderegg, Barbara Döbeli and Christian Ritzmann from Swiss National Bank supported the working group.

<sup>2</sup> [FX execution algorithms and market functioning](#), October 2020, p. 4.

## 2. Key topics

### 2.1. TCA and data availability

Background/findings: Principle 18 of the Code states that providers of algorithmic execution should disclose a clear description of their strategy and sufficient information to enable the client to evaluate the performance of their service. Clients are encouraged to use such data and disclosed information in doing so. Clients typically assess the trade execution of EAs with a Transaction Cost Analysis (TCA). This is a widely used term in the industry, which is not mentioned in the Code. TCA compares the traded price of the parent order or its child orders against a benchmark. Such analysis can be carried out by clients themselves, can be procured from independent third-party providers, or clients can rely on the TCA provided by the Algo providers. In case of EAs, clients are not able to compare the final traded price before the end of the execution and bear additional market risk for the duration of the execution compared to most other forms of execution. In return, clients should receive better quality execution. TCA is central to determining whether clients have been adequately compensated for the additional risk. In addition, it helps in comparing the services of various providers.

In the view of the working group, the bar for market participants to evaluate the performance of algorithmic execution by conducting TCA is high. Even though the calculations themselves are typically not too complicated, accessing and processing the required data as well as choosing or calculating an adequate benchmark can be a challenge. The correct handling and analysis of large data sets requires skill and investment in technology or, if delegated to a third party, can be costly.

Recommendation and expected benefits: The working group therefore found that guidance should be issued on the content of information which EA providers make available to their clients for evaluating an execution, and that standardisation of such information will help reduce costs for both providers and users of EAs.

The working group prefers a data template (aspirational version) that includes all actions that occurred on a child order level (order submission, fill, reject including reject reason,<sup>3</sup> cancel or amendment) should be reported. Such an approach would considerably improve transparency and would enable users to run more detailed analysis. Users that require less granular data could filter or aggregate the data according to their needs. Further important data objects are Code adherence by execution venue and the liquidity type (firm or last look). The latter provides clarity as to whether a child order was executed on firm or last look liquidity. However, in light of the comments received during the LFXC feedback round, the working group also proposes a simpler data template (basic version) that would contain only fills at a child order level.

A standardised information set could be particularly helpful for less sophisticated clients and smaller buy-side market participants with limited technical and/or financial resources. Simultaneously, it would also help Algo providers to produce standardised reports, demonstrating that they undertake ample steps to achieve the best possible outcomes for their

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<sup>3</sup> See the consultation document prepared by the GFXC Disclosures Working Group for proposed changes to Code Principles 9 and 36 to include text on trade rejections.

clients. The harmonisation of the reporting should improve efficiency as clients and third-party TCA providers currently operate on the basis of various reporting formats.

Receiving additional data puts the Algo user in a position to create a meaningful TCA with reasonable efforts. The datasets should include, on parent order levels, benchmarks like mid at arrival and risk transfer price. The availability of such benchmarks lowers the bar for less sophisticated clients to make their own analysis and compare the outcomes of their executions.

**Implementation of the recommendation:** The working group has created a data template, shown in 3.2. (Transaction Cost Analysis Data Template) in its two versions, to foster the desired data standardisation goal. The template defines a standard format for the content of the fields. Each data field's content, format and its allowed values are specified in the template. The template contains two sections, one with a summary at the level of the parent order, the other with details on the child orders. The working group also produced an example to illustrate what a report based on the template would actually look like. The example of the report, in both versions, can be found in the Excel spreadsheet called Example – TCA Template, which is distributed separately from this Note.

Regarding publication of the Transaction Cost Analysis Data Template, the working group envisages using the GFXC website, where it could be located under '[Resources](#)' in a new 'template' section. Context around the template would also be provided there.

**Underpinning the recommendation from within the Code:** The working group proposes underpinning the data template by explicitly mentioning Transaction Cost Analysis in Principle 18 and including a definition in the glossary of the Code. The proposed introduction of TCA in Principle 18 reads as follows:

*'Market Participants providing algorithmic trading services to Clients should disclose pertinent information to be used for the purpose of Transaction Cost Analysis (TCA). They are encouraged to provide data using the Transaction Cost Analysis Data Template published by the GFXC. Additional data should be provided if it is considered useful.'*

To read the amended version of Principle 18 in its entirety, please see 3.1.1. Furthermore, section 3.1.2. presents the additional entries for the Code's glossary:

***'Algorithmic execution:*** Trade execution through computer programs that apply algorithms. At the most basic level, a computer program automates the process of splitting a larger order known as the 'parent order' into multiple smaller orders known as 'child orders', and executes them over a period of time separately rather than all together.'

***'Transaction Cost Analysis (TCA):*** Analysis to evaluate the quality of trade execution, e.g. by comparing the resultant price of an execution against a benchmark.'

**Maintaining the recommendation and measuring its success:** As mentioned above, the working group assumes that the data template can be best entrenched into the fabric of the FX market if it is provided by the GFXC through its website with appropriate instructions for its use. However, this approach entails the possibility of receiving queries that the GFXC Secretariat may be ill-resourced to handle adequately. Therefore, the working group would like to ascertain during the public 'Request for Feedback' process if a neutral market body would be prepared to support the GFXC in that regard. In the months following the data

template’s initial release, the Algo/TCA working group could also remain active in order to help resolving teething problems.

Furthermore, the working group considers it necessary to guarantee the upkeep of the data template by reviewing it at a minimum on the same cycle as the Code itself, i.e. currently every three years. Any conceptual feedback on the template received between reviews could be collected by the GFXC Secretariat and taken into account during the review. Market participants should also be surveyed regularly in order to determine the usage of the data template.

**GFXC proposal and Request for Feedback questions:** The GFXC proposes to foster the provision of standardised information by providers of execution algorithms; this includes (1) a Transaction Cost Analysis Data Template to support analysis by users of algorithms and (2) an amendment of Principle 18. In this regard, it is seeking industry feedback by asking the following questions:

B1	Please state your relationship to algorithmic execution:
	<input type="checkbox"/> Algo Provider <input type="checkbox"/> Algo User <input type="checkbox"/> Technology/data provider <input type="checkbox"/> Other
B2.1	Will you use the template? If not, why not?
B2.2	Which version of the template do you prefer?
	<input type="checkbox"/> aspirational <input type="checkbox"/> basic
B2.3	Do you have any comments on the content of the template? If so, please be as specific as possible (e.g. mentioning the data element(s) that you are missing or consider not necessary) and substantiate your comment(s).
B2.4	Following the publication of the new version of the FX Global Code, how much time would you need in order to be able to provide/take data in the proposed format?
	Aspirational version (in months): ..    basic version (in months): ..
B2.5	Do you have any comments on the proposals regarding implementation, maintenance and measuring success?
B2.6	In case you are a neutral market body, would you be interested in supporting the GFXC in operationalising these proposals? What could you contribute?
B2.7	Do you have any comments on the additional text in Principle 18 to encourage market participants to use the Transaction Cost Analysis Data Template?

## 2.2. Control mechanisms and liability

Against the background of automated order execution risks,<sup>4</sup> the working group looked at control mechanisms<sup>5</sup> as well as the regulatory requirements in jurisdictions where algorithmic trading is regulated. Disclosures surrounding controls embedded in EAs as well as the contractual liabilities in case of an EA malfunction were also topics.

The working group reviewed available regulatory documents for algorithmic trading in FX or other asset classes.<sup>6</sup> Such regulatory documents can, among other things, require providers to have in place in-built safety features, such as a mechanism that automatically and immediately interrupts or stops execution in the event of a malfunction or other undesirable events ('kill switch'). The working group discussed whether to include related guidance in the Code. The opinion was unanimous that this would go beyond the purview of the Code.

The working group found that disclosures about controls embedded in EAs are usually vague. Furthermore, responsibilities are often not clearly spelt out in user agreements of execution algorithms, so that contractual liability in the event of an EA malfunction would likely be unclear. The working group therefore contemplated addressing these shortcomings through the proposed Algo Due Diligence Template (see 2.4.). However, due to the complexity of these matters, there is no simple, uniform solution which could make a meaningful impact in this area. Therefore, the working group decided to refrain from adding control mechanisms and liability content to the Algo Due Diligence Template for the time being.

## 2.3. Conflicts of interest

Background/findings: The working group identified two particular areas in which conflicts of interest could potentially arise. On the one hand, conflicts can occur between parties within the institution, namely between the desk providing algorithmic execution services (Algo desk) and the principal market-making desk (principal desk). The latter could exploit information from clients' Algo orders (amount, side, duration) or attempt to influence order routing decisions towards internal liquidity rather than external liquidity, thereby fostering internalisation that is contrary to the interests of the clients. On the other hand, there may also be conflicts with third parties such as trading venues as well as other relevant service providers arising from specific pricing agreements with them or ownership stakes in them. Such arrangements could influence order routing decisions in a way that is not in the clients' best interest.

There was consensus in the working group that a disclosure requirement for conflicts of interest around algorithmic trading would be beneficial. Principle 3 of the Code deals with

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<sup>4</sup> The use of EA involves two main risks: operational risk and market risk. Operational risks result from malfunctions of algorithms and failures in IT systems, but also from human errors, such as an overly aggressive parameterisation of an EA. Market risk arises from potential losses due to unfavourable market movements. Users executing via EAs carry market risk for the duration of the execution.

<sup>5</sup> EAs allow embedding controls within the execution process. In the BIS paper '[FX executions algorithms and market functioning](#)', controls are categorised according to the phase during the execution process into pre-trade, in-flight and post-trade. Pre-trade controls serve as a final check on market orders before they are transmitted to the trading venues. In-flight controls allow users or providers to adjust execution parameters during an execution, often when market conditions change, or the algorithm behaves in an undesirable or unexpected way. Providers may also use a built-in 'kill switch' – a mechanism designed to automatically pause or halt execution instantaneously in case of malfunction or other events. Unlike circuit breakers and pauses applied by exchanges, kill switches for execution algorithms are implemented and triggered by individual institutions. Post-trade controls involve ongoing monitoring of intra-day market and credit exposures against limits. Transaction logs are reviewed to identify errors.

<sup>6</sup> See 3.4 for a list of the reviewed documents.

conflicts of interest in general. The existing transparency guidelines around algorithmic trading in Principle 18 do not cover them.

Additionally, the working group discussed whether potential conflicts between the Algo desk and the principal desk should be addressed by a specification of certain organisational structures at institutions providing such services to clients. Specifically, the working group considered two possible measures mentioned in Principle 3 in general around conflicts of interest in the Algo space: information barriers and segregation of duties between the Algo desk and the principal desk. Barriers (for example, physical segregation of the two desks and/or electronic segregation) would prevent the principal desk from obtaining information from ongoing clients' Algo orders. In case of segregation of duties, only Algo desks that do not take market risk would offer execution algorithms. The most far-reaching form would be a setup in which algorithmic execution services would be subject to the same segregation rule as the Code foresees for prime brokerage services.<sup>7</sup> The working group considered both measures as being too prescriptive as well as too burdensome and costly for the industry, especially for smaller providers of algorithmic execution services.

Recommendation and expected benefits: As mentioned above, there was a broad consensus that Algo providers should disclose any conflicts of interest and how they address them. To require more transparency would be in line with and complement the existing transparency guidelines in Principle 18. It would enable the clients to make informed decisions about which providers they want to interact with. In general, a desire of the working group is that EA users can obtain all relevant information to understand the providers' Algo business. Based on standardised questionnaires, which already exist to make Algo trading in the equity markets more transparent, the working group resolved to proceed in the same way and to propose a template for FX Algo Due Diligence (see 2.4.). One section of the template is devoted to questions addressing conflicts of interest.

Underpinning the recommendation from within the Code: Furthermore, the working group proposes to underpin the importance of adequate conflicts of interest disclosures by adding the following sentence to Principle 18:

*'Market Participants providing algorithmic trading or aggregation services should disclose any conflicts of interest that could impact the handling of any client order, e.g. arising from their interaction with their own principal liquidity, or particular commercial interests in trading venues or other relevant service providers, and how such conflicts are addressed.'*

To read the amended version of Principle 18 in its entirety, please see 3.1.1.

**GFXC proposal and Request for Feedback question:** The GFXC proposes to improve transparency by adding a disclosure requirement for conflicts of interest around algorithmic trading. In this regard, it is seeking industry feedback by asking the following question:

B3	Do you have any comments on the additional text in Principle 18 around the disclosures of conflicts of interest?
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<sup>7</sup> See Principle 19.



## 2.4. Disclosure and user education

Background/findings: Currently, EA providers provide general information on the functionality of their execution algorithms. Sophisticated buy-side participants create individual questionnaires to obtain additional specific information, which is effortful for them as well as for the EA providers that have to respond to many different versions of such questionnaires. Moreover, less sophisticated clients typically shy away from drawing up their own questionnaires because they might lack the necessary knowledge.

The fact that disclosures related to FX Algos are not uniform was brought up repeatedly by working group members within all the topics discussed. This lack of uniformity is inefficient for both providers and clients. In addition, it makes it difficult for clients to compare different providers and to arrive at informed decisions. The latter is also hampered by the fact that information is often insufficient due to the lack of a generally accepted minimum standard for disclosure.

The Study Group established by the BIS Markets Committee outlined similar findings in its report '[FX executions algorithms and market functioning](#)', which states that,

- Issues that warrant further consideration include ... more uniform disclosures across the market.<sup>8</sup>
- Disclosures related to EAs are typically high-level and non-standardised. Given the myriad of EAs on offer, making an informed decision about which one to choose requires detailed information on what an algorithm does and how it does it, i.e. its characteristics and decision logic.<sup>9</sup>
- The uneven access to data and the presence of information asymmetry, the high degree of opaqueness related to transacted prices and volumes, and the lack of standardised disclosures constitute major hurdles.<sup>10</sup>
- Disclosures surrounding controls embedded in EAs are typically vague and contractual liabilities in the event of EA malfunction are therefore often unclear.<sup>11</sup>
- Disclosures on providers' choice of liquidity sources and related financial incentives for order routing decisions are typically scarce or non-existent.<sup>12</sup>

Recommendation and expected benefits: Based on these findings, the working group proposes to introduce a uniform questionnaire for FX Algo Due Diligence. The idea of a template for FX Algos has precedent in equity markets where the Investment Association and the Association for Financial Markets in Europe (AFME) host an algorithm template. The template is voluntary but used by almost all brokers.<sup>13</sup> The FX Algo Due Diligence Template would also be for voluntary use. A central issue to the working group is that its adoption is market-driven rather than mandated. Clients should ask their providers to complete it because

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<sup>8</sup> [FX execution algorithms and market functioning](#), October 2020, p. 2.

<sup>9</sup> Ibid., p. 34.

<sup>10</sup> Ibid.

<sup>11</sup> Ibid.

<sup>12</sup> Ibid.

<sup>13</sup> [www.afme.eu/news/press-releases/detail/investors-and-brokers-unite-to-make-algo-trading-more-transparent](http://www.afme.eu/news/press-releases/detail/investors-and-brokers-unite-to-make-algo-trading-more-transparent)

they find it valuable and providers should gladly choose to do so in order to service their clients as best as possible.

The working group has produced a draft template for FX Algo Due Diligence (see 3.3.) that includes questions around conflicts of interest, allocation policy, routing policy, segregation policy, safety features, TCA and FX swaps ('Rolls'). The template starts with a general section outlining the core features of the algorithm. If the information provided applies for more than one algorithm, all these algorithms can be covered in the same document. The template's content has been drawn from existing client questionnaires that have been reviewed by the working group. There have been further reviews by 12 institutions (buy-side, sell-side, service providers) outside the working group.

The benefit expected from the FX Algo Due Diligence Template is that providers can complete a single questionnaire instead of different bilateral versions, saving time and improving upon the usefulness of the existing individual ones. Clients receive a high minimum standard of disclosure that applies consistently across multiple FX algorithm providers.

Implementation of the recommendation: To increase visibility and facilitate accessibility, it is proposed that the template is published by the GFXC on its website. The document could be made available for download under '[Resources](#)', where a new 'template' section would be created. Context around the template would be provided there as well.

EA providers should make their answers to the FX Algo Due Diligence Template easily accessible to clients. They can publish a completed template in the unrestricted area of their website or provide it to clients bilaterally should it contain sensitive information.

Underpinning the recommendation from within the Code: The working group proposes to underpin the template by explicitly mentioning it in Principle 18. The proposed amendment of Principle 18 reads as follows:

*'Market Participants providing algorithmic trading services to Clients are encouraged to use the GFXC's FX Algo Due Diligence Template to share disclosure information in a manner easily accessible, e.g. either by making their answers available bilaterally to both existing and prospective Clients, or by publishing them in the unrestricted area of their website.'*

To read the amended version of Principle 18 in its entirety, please see 3.1.1.

Maintaining the recommendation and measuring its success: As mentioned above, the working group assumes that the FX Algo Due Diligence Template can be best entrenched into the fabric of the FX market if it is provided by the GFXC through its website with appropriate instructions for its use. This approach entails some of the same questions as for the TCA data template (see 2.1 above).

The working group would prepare explanatory material to support coverage in industry publications and find volunteers within the GFXC and its associated groups to support the roll-out process. In this context, the working group also proposes to pre-align some guaranteed adaptors prior to launching the template.

Furthermore, the working group considers it necessary to guarantee the upkeep of the FX Algo Due Diligence Template by reviewing it at a minimum on the same cycle as the Code itself, i.e. currently every three years. In terms of conducting these reviews, the working group

would like to ascertain during the public ‘Request for Feedback’ process whether a neutral market body would be willing to support the GFXC in this effort. The same procedure as for the Transaction Cost Analysis Data Template could be used for handling teething problems and feedback received between the reviews. Market participants should also be surveyed regularly in order to determine the usage of the FX Algo Due Diligence Template.

**GFXC proposal and Request for Feedback questions:** The GFXC proposes to foster the provision of standardised information by providers of execution algorithms; this includes (1) an Algo Due Diligence Template and (2) an amendment of Principle 18. In this regard, it is seeking industry feedback by asking the following questions:

B4.1	Will you use the template? If not, why not?
B4.2	Do you have any comments on the content of the template? If so, please be as specific as possible (e.g. suggesting rephrased or additional questions, commenting on questions to be removed) and substantiate your comment(s).
B4.3	Do you have any comments on the proposals regarding implementation, maintenance and measuring success?
B4.4	In case you are a neutral market body, would you be interested in supporting the GFXC in operationalising these proposals? What could you contribute?
B5	Do you have any comments on the additional text in Principle 18 around the Algo Due Diligence Template?

### 3. Annex

#### 3.1. Proposed amendments to Principle 18 and the Glossary

##### 3.1.1. Principle 18

Market Participants providing algorithmic trading or aggregation services to Clients should provide adequate disclosure regarding how they operate. Market Participants may provide Clients with algorithmic trading services that use computer programs applying algorithms to determine various aspects, including price and quantity of orders.

Market Participants may also provide aggregation services to Clients, services that provide access to multiple liquidity sources or execution venues and that may include order routing to those liquidity sources or venues.

Market Participants providing algorithmic trading or aggregation services to Clients should disclose the following: a clear description of the algorithmic execution strategy or the aggregation strategy and sufficient information to enable the Client to evaluate the performance of the service, in a manner that is consistent with appropriate protection of related Confidential Information; whether the algorithm provider or the aggregation service provider could execute as Principal; the fees applicable to the provision of the services; in the case of algorithmic trading services, general information regarding how routing preferences may be determined; and in the case of aggregation services, information on the liquidity sources to which access may be provided.

*[Conflict of Interest workstream] Market Participants providing algorithmic trading or aggregation services should disclose any conflicts of interest that could impact the handling of any client order, e.g. arising from their interaction with their own principal liquidity, or particular commercial interests in trading venues or other relevant service providers, and how such conflicts are addressed.*

*[Disclosure and user education workstream] Market Participants providing algorithmic trading services to Clients are encouraged to use the GFXC's FX Algo Due Diligence Template to share disclosure information in a manner easily accessible, e.g. either by making their answers available bilaterally to both existing and prospective Clients, or by publishing them in the unrestricted area of their website.*

*[TCA and data availability workstream] Market Participants providing algorithmic trading services to Clients should disclose pertinent information to be used for the purpose of Transaction Cost Analysis (TCA). They are encouraged to provide data using the Transaction Cost Analysis Data Template published by the GFXC. Additional data should be provided if it is considered useful.*

Clients of algorithmic trading providers should use such data and disclosed information in order to evaluate, on an ongoing basis, the appropriateness of the trading strategy to their execution strategy.

Clients that use an aggregator to access trading venues should understand the parameters that will define the prices displayed by the aggregator.

Market Participants providing algorithmic trading or aggregation services should provide services that perform in the manner disclosed to the Client.

### 3.1.2. Glossary

**Transaction Cost Analysis (TCA):** Analysis to evaluate the quality of trade execution, e.g. by comparing the resultant price of an execution against a benchmark.

**Aggregation services:**<sup>14</sup> Aggregation Services are services provided to Clients for leveraging the provider's access to one or more pool(s) of liquidity.

**Algorithmic execution:** Trade execution through computer programs that apply algorithms. At the most basic level, a computer program automates the process of splitting a larger order known as the 'parent order' into multiple smaller orders known as 'child orders', and executes them over a period of time separately rather than all together.

**GFXC proposal and Request for Feedback questions:** The GFXC proposes to add the three above-mentioned terms to the FX Global Code's Glossary. In this regard, it is seeking industry feedback by asking the following questions:

B6.1	Do you agree with the definition of Transaction Cost Analysis? If not, what would you change?
B6.2	Do you agree with the definition of algorithmic execution? If not, what would you change?
B6.3	Do you agree with the definition of aggregation services? If not, what would you change?

<sup>14</sup> Aggregation services are mentioned alongside algorithmic trading in Principle 18. The working group therefore proposes to also insert a definition for this term.

### 3.2. Transaction Cost Analysis Data Template

Below you will find the information to be included in the proposed TCA template. Template elements that would not be included in the basic version of the data template are marked in red colour below as well as in the example of the report (provided separately in the Excel spreadsheet called Example-TCA Template).

#### *Parent order information*

Field	Description	Format	Allowed values	Example
Algo Provider	Name of the algo's provider	Alphanumeric		Firm
Algo Name	Name of the algorithm	Alphanumeric		Floater
Parent Order Currency Pair	Currency pair of the parent order	Alpha (XXXYYY)	any two ISO currency codes	EURUSD
Parent Order Direction	Direction of the parent order currency pair from the client's perspective	Alpha	buy sell	sell
Parent Order Amount	Amount of the parent order	Numeric		1000000
Parent Order Amount Currency	Currency of the amount of the parent order	Alpha (XXX)	any one ISO currency code	USD
Parent Order Start Time	Start time of the parent order (in UTC)	HH:MM:SS.sss		09:00:05.450
Parent Order End Time	End time of the parent order (in UTC)	HH:MM:SS.sss		09:11:27.100
Parent Order Traded Rate (excl. Fee)	Traded rate of the parent order excluding the algo fee	Numeric		1.14312800
Parent Order Traded Rate (incl. Fee)	Traded rate of the parent order including the algo fee	Numeric		1.14312800
Parent Order Unique Reference	Algo provider's internal identification of the parent order	Alphanumeric		AA1125:434XYZ
Parent Order Trade Date	Trade date of the parent order	Numeric YYYYMMDD		20150205

Parent Order Value Date	Value date of the parent order	Numeric YYYYMMDD		20150205
Mid at Arrival	Top of book mid-rate on the primary ECN at the start time of the parent order	Numeric		1.14312800
Risk Transfer Price (if available)	The estimated risk transfer price for the parent order, if the whole notional amount had been dealt at the start time of the parent order	Numeric		1.14312800

**Child order information**

Field	Description	Format	Allowed values	Example
Child Order ID	Algo provider's internal identification tag of the child order	Alphanumeric		XYC125:434XUN
Action Time	Timestamp for each action taken in UTC. Action includes <b>submission</b> , fill, <b>reject</b> , <b>cancel</b> , <b>amendment</b> on child order level and amendment on parent order level.	HH:MM:SS.sss		09:11:27.100
Action	Action includes <b>submission</b> , fill, <b>reject</b> , <b>cancel</b> , <b>amendment</b> on child order level and amendment on parent order level	Alpha	<b>Submission</b> , Fill, <b>Reject (incl. reject reason if possible)</b> , <b>Cancel</b> , <b>Amendment</b> , Parent order amendment	Fill
Child Order Direction	Direction of the child order currency pair from the client's perspective	Alpha	buy sell	buy
Child Order Currency Pair	Currency pair of the child order	Alpha (XXXXYY)	any two ISO currency codes	EURUSD
Child Order Action Amount	Notional amount of the corresponding action of the child order	Numeric		1000000
Child Order Amount Currency	Currency of the amount of the child order	Alpha (XXX)	any one ISO currency code	EUR

Parent Order Algo Mode	Most important setting of the algorithm (for example urgency parameter)	Alphanumeric		slow
Parent Order Limit Price	Limit price of the parent order in place at the action time	Numeric		1.14312800
Parent Order Amount	Amount of the parent order in place at the action time	Numeric		1000000
Child Order Order Type	Classification of the aggressiveness of the child order	Alpha	Aggressive, Mid, Passive, Other	Passive
Child Order Rate (excl. Fee)	Rate of the child order excluding the algo fee	Numeric		1.14312800
Child Order Rate (incl. Fee)	Rate of the child order including the algo fee	Numeric		1.143122
Execution Venue	Name of the execution venue to which the child order was submitted	Alphanumeric		Internal
Execution Venue Location	Location of the execution venue	Alphanumeric	LD4, NY4, NY5, SG1, TY3, Other	LD4
Execution Venue Liquidity	Liquidity/characteristics/policy of the execution venue	Alpha	Firm Lastlook Mixed	Lastlook
Execution Venue Code Adherence	Specification whether the execution venue and liquidity providers on the venue have signed a statement of commitment to the FX Global Code	Alpha	Yes No	Yes
Reference Market Bid Rate	Top of book bid rate on the primary ECN at the time of the child order's action	Numeric		1.14312800
Reference Market Offer Rate	Top of book offer rate on the primary ECN at the time of the child order's action	Numeric		1.14312800



### 3.3. Algo Due Diligence Template

## FX GLOBAL CODE

### Algo Due Diligence Template

#### GENERAL

*This general section outlines the core features of the algorithm. Providers may consolidate answers 1–5 into a table or grid if they wish to cover multiple algorithms with the same template.*

1. Algo Provider (also referred to as “you” or “your” below as required):
2. Algo name(s):
3. Liquidity type (internal, external, hybrid):
4. Products covered (spot, NDF):
5. Description<sup>15</sup> of algo(s):
6. Please describe any parameters or controls the user may adjust:
7. Please specify if the product is built internally or externally:

#### CONFLICTS OF INTEREST

*Some conflicts of interest may be expected but it is important to know what they are and what steps have been taken to manage them. This way the Algo User can make an informed decision.*

8. If principal liquidity interacts with the Algo User’s order, how does this happen and what steps are taken to ensure the fill is a fair one from the order’s point of view?
9. If another part of your business needs to hedge or trade in the same direction as the Algo User’s order, how are fills allocated between the two?
10. Are there any particular commercial interests in trading venues or other relevant service providers that interact with the algorithm provided by you? If so, how are such

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<sup>15</sup> You may find it helpful to refer to the ‘algo archetypes’ delineated in section 2.1 of [FX execution algorithms and market functioning](#)

conflicts addressed?

11. Please elaborate on your role as regards market risk, counterparty risk, and settlement risk.

12. Is there anything else of which you feel the Algo User should be aware?

## ALLOCATION POLICY

*There are many different approaches to allocations. It is important to understand what happen in circumstances where multiple clients wish to trade or, indeed, when one order would be used to fill the order of another client.*

13. If you have more than one client order wishing to trade in the same pair and on the same side, how are fills allocated amongst these orders?

14. If two client orders are eligible for execution netting, how does this process work?

## ROUTING POLICY

*Routing policy is an important topic. There are several components such as how execution venues are evaluated, curated, and prioritised. Also covered is the question of what fair-value mid the algo uses to make routing decisions and how information leakage is avoided when placing lit orders. Finally, internalisation is defined: some providers have a strict definition such as 'two algo orders netting' whereas others will include midbooks and trades where they have shown a skew through mid externally to incentivise another counterparty to fill them.*

15. How are hedging execution venues evaluated, including both observable (spread, impact) and implicit costs (information leakage)?

16. How do you prioritise between different execution venues (both external and internal sources) when routing orders?

17. If multiple clients enter orders in the same pair, will you aggregate these orders before placing orders externally or treat each client order individually and place multiple similar orders, which may compete with one another for fills?

18. What – if any – ongoing work do you do in order to curate execution venues, where curation is possible? Approximately how often is this conducted?

19. Do you have any logic to avoid orders on lit execution venues causing information leakage? If so, please describe it.

20. Does the mid/fair-value used by the algorithm differ from the one used by your own market making system for pricing and risk management? If yes, please specify.

21. Please define your understanding of ‘internalisation’ and, using an example, describe how this works in practice, demonstrating if/how your algo clients benefit from this process. If you wish to do so you may provide an indication of how much volume is internalised on average.

## SEGREGATION POLICY

*Segregation policy is all about keeping order information private and reducing the risk of signalling.*

22. Please describe if and how the algo orders are segregated within your institution.
23. Can sales and trading personnel who provide intraday ‘market colour’ view algo orders at any stage? If so, what steps have been taken to minimise the risk of information leakage?
24. Can discretionary traders who may enter or exit risk for your institution view algo orders at any stage? If so, what steps have been taken to minimise the risk of information leakage?
25. Can an electronic market making system view algo orders at any stage? If so, what steps have been taken to minimise the risk of information leakage or misuse of information?
26. Are algo order flows included in any market positioning tools or analyses that other clients may use?

## SAFETY FEATURES

*Safety features might include fat-finger limits, kill switches or protections that automatically suspend the order when it trades too fast or in certain market conditions.*

27. Please describe any in-built safety features you have that may cause an order to be suspended or rejected.
28. Please explain what you have done, and will continue to do, to ensure the integrity of the electronic trading system you provide for clients to use (including the system’s reliability, security, capacity and contingency measures).

## TCA

*TCA is an increasingly important part of the service. Where the TCA is not third party it is important to understand internal metrics. For example, if you have ‘beaten risk transfer price’ by 3bp how is that risk transfer price calculated?*

29. Do you support any TCA or analytics? If so, please specify which providers.

30. If you provide proprietary analytics, please describe how relevant metrics are calculated (mid-price, risk-transfer benchmarks, etc.).
31. If you provide proprietary analytics, is there a difference in data provided to different users? If so, please elaborate.

## **SWAPS**

*Algo users may have a need to roll an algo execution entirely/partially to one or more forward value date/s. If roll forwards are executed with the Algo Provider, it is crucial to understand if the respective swap prices are competitive and whether potentially sensitive order information is exposed. For example, does the swaps trader know which side of the quote the algo execution is on or do they receive a two-sided RFQ? Also, does the swap trader know they are quoting a captive spot fill or does it appear the same as RFQs that are priced in competition with other banks?*

32. What information is provided to the STIRT desk when there is a request for swap pricing from an algo order?

### 3.4. Directory of regulatory documents covering algorithmic trading

#### European Union:

[MiFID II RTS 6](#) (2016): Regulatory technical standards (RTS) specifying the organisational requirements of investment firms engaged in algorithmic trading

[ESMA Guidelines \(Withdrawn\)](#) (2012): Systems and controls in an automated trading environment for trading platforms, investment firms and competent authorities

[ESMA consultation paper](#) (2020): ESMA consults on the impact of algorithmic trading

#### United Kingdom:

Financial Conduct Authority (FCA) (2018): [Algorithmic Trading Compliance in Wholesale Markets](#)

FCA (2021): [Market conduct](#), MAR 7A Algorithmic Trading

Bank of England (BoE) (2018): [Algorithmic trading](#)

#### United States:

CFTC (Commodity Futures Trading Commission) (2015): [Regulation Automated Trading](#). This regulation proposed in 2015 by the CFTC would have resulted in significant changes to how firms managed the risks associated with algorithmic trading. However, [CFTC rescinded the proposed rule in 2020](#) and instead proposed a rule that offers a [set of principles for electronic trading](#).

Treasuries Markets Practices Group (TMPG) (2015): [Automated Trading in Treasury Markets](#): Page 5, Box 2: Certain regulations relevant to risk management of automated trading of treasury securities

#### Australia:

Australian Securities & Investments Commission (ASIC) (2018): [Regulatory Guide 241: Electronic trading](#), Guide issued by ASIC for market participants that use their systems for automated order processing (AOP). It gives guidance on how they can comply with their obligations under the [ASIC Market Integrity Rules \(Securities Markets\) 2017](#) that apply to the use of automated order processing (5.6)

#### Hong Kong:

Hong Kong Monetary Authority (HKMA) (2019): [Sound risk management practices for algorithmic trading](#)

## 4. Questions

B1	When providing feedback, please state your relationship to algorithmic execution:
	<input type="checkbox"/> Algo Provider <input type="checkbox"/> Algo User <input type="checkbox"/> Technology/data provider <input type="checkbox"/> Other

**Transaction Cost Analysis Data Template** (see Transaction Cost Analysis Data Template on page 14 and context provided in TCA and data availability on page 4)

B2.1	Will you use the template? If not, why not?
B2.2	Which version of the template do you prefer?
	<input type="checkbox"/> aspirational <input type="checkbox"/> basic
B2.3	Do you have any comments on the content of the template? If so, please be as specific as possible (e.g. mentioning the data element(s) that you are missing or consider not necessary) and substantiate your comment(s).
B2.4	Following the publication of the new version of the FX Global Code, how much time would you need in order to be able to provide/take data in the proposed format?
	Aspirational version (in months): ..   basic version (in months): ..
B2.5	Do you have any comments on the proposals regarding implementation, maintenance and measuring success?
B2.6	In case you are a neutral market body, would you be interested in supporting the GFXC in operationalising these proposals? What could you contribute?

**Amendment of Principle 18 to introduce Transaction Cost Analysis (TCA) and to encourage market participants to use the data template** (see Principle 18 on page 12 and context provided in TCA and data availability on page 4)

B2.7	Do you have any comments on the additional text in Principle 18 to encourage market participants to use the Transaction Cost Analysis Data Template?
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**Amendment of Principle 18 to cover conflicts of interest** (see Principle 18 on page 12 and context provided in Conflicts of interest on page 7)

B3	Do you have any comments on the additional text in Principle 18 around the disclosures of conflicts of interest?
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**Algo Due Diligence Template** (see Algo Due Diligence Template on page 17 and context provided in Disclosure and user education on page 9)

B4.1	Will you use the template? If not, why not?
B4.2	Do you have any comments on the content of the template? If so, please be as specific as possible (e.g. suggesting rephrased or additional questions, commenting on questions to be removed) and substantiate your comment(s).

B4.3	Do you have any comments on the proposals regarding implementation, maintenance and measuring success?
B4.4	In case you are a neutral market body, would you be interested in supporting the GFXC in operationalising these proposals? What could you contribute?

**Amendment to Principle 18 to encourage the use of the Algo Due Diligence Template**  
(see Principle 18 on page 12 and context provided in Disclosure and user education on page 9)

B5	Do you have any comments on the additional text in Principle 18 around the Algo Due Diligence Template?
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**Additional entries for the Code's glossary** (see Glossary on page 13)

B6.1	Do you agree with the definition of Transaction Cost Analysis? If not, what would you change?
B6.2	Do you agree with the definition of algorithmic execution? If not, what would you change?
B6.3	Do you agree with the definition of aggregation services? If not, what would you change?