FCA FINANCIAL CONDUCT AUTHORITY

Call for input on smarter regulatory reporting response form

We are asking for comments on this Call for Input by 20 June 2018.

Please use this online form or alternatively, send comments in writing to: RegTech & Advanced Analytics, Financial Conduct Authority, 25 The North Colonnade, Canary Wharf, London E14 5HS

Email: regtech@fca.org.uk

We make all responses to formal consultation available for public inspection unless the respondent requests otherwise. We will not regard a standard confidentiality statement in an email message as a request for non-disclosure.

Despite this, we may be asked to disclose a confidential response under the Freedom of Information Act 2000. We may consult you if we receive such a request. Any decision we make not to disclose the response is reviewable by the Information Commissioner and the Information Rights Tribunal.

Once you complete this form, we will email you a copy of your submission to acknowledge receipt of your response.

Executive Summary

On behalf of the Association for Financial Markets in Europe ("AFME"[1]) and its members, we welcome the opportunity to respond to the Financial Conduct Authority (FCA) Call for Input: Using technology to achieve smarter regulatory reporting, issued on 20 February 2018.

AFME wishes to congratulate the FCA on the November 2017 TechSprint ('proof of concept') to explore the potential for model driven, machine readable and executable reporting. AFME shares the view of the FCA that the efficiency of the current system of regulatory reporting could be improved, and that technology could play an important role in achieving this outcome for the industry.

AFME is supportive of the initiative by the FCA to promote technology to achieve smarter regulatory reporting. We would welcome the opportunity to discuss our recommendations in this response to help achieve an approach that can be successfully adopted by the industry.

AFME particularly welcomes wider efforts to:

- **Harmonise regulatory requirements;**
- **Identify ways regulatory rules could be automated for efficiency gains; and**
- **Help firms meet their regulatory requirements while potentially reducing costs, and increasing the efficiency, associated with this activity.**

AFME has identified the following four key recommendations for the FCA in our response to this call for input:

1. **Alignment of standards, definitions and data structures at the EU and international level will be essential to deliver at scale the potential benefits of machine readable and executable regulation.**
    - The long-term benefits of this initiative - such as increasing the efficiency associated with regulatory reporting - will be largely dependent on the regional and global regulatory agreement and harmonisation of reporting rules across jurisdictions. Incorporating existing industry lessons learned and feedback will be important to support this initiative.
    - **AFME recommends** that the FCA provide an update on its engagement model with other regulators, in relevant global forums (e.g. FSB, IOSCO, G7, G20), to share the experience gained from the initial smarter regulatory reporting proof of concept, and to identify ways a common approach can be developed and adopted globally.
    - **AFME recommends** that the next set of activities for this initiative should have:
        - A clear focus and aim of clarifying regulatory expectations based on internationally recognised standards, definitions and data structures, and
        - Should prioritise developing an agreed approach towards harmonisation with other relevant competent authorities, developing the relevant frameworks or standards required, to ensure the solution proposed can be deployed at scale in the long term.

2. **A detailed roadmap for the next stages of this initiative should be developed with the industry that includes a cost benefit analysis of the wider use of this technology and criteria for selecting implementation use cases.**
    - A detailed roadmap is required to outline how this initiative can be progressed following the November 2017 proof of concept. A roadmap would help firms prioritise this initiative, and their available resources, in the context of other mandatory regulatory initiatives underway both in the region and globally.
    - As a minimum the roadmap should include:
        - Clearly identified scope;
        - Objectives and milestones;
        - An industry engagement and funding model;
        - A cost-benefits analysis for this technology;
        - Quantifiable and scalable benefits and outcomes; and
        - Selection criteria for selecting implementation use cases.

- An important consideration in this roadmap must also be how the approach to manage regulatory reporting executed under a new 'machine executable' model will take place in parallel to reporting continuing under current conditions.
- **AFME recommends** that the FCA creates an industry task force to progress this initiative and develop the roadmap for the next stages. The FCA should take a central role in coordinating this activity with market participants and other regulatory stakeholders. This would be beneficial in providing clear direction to the industry to progress the required activities (such as the development, or alignment of, standards) and ensure any future solution could be scaled globally.

3. **The next proof of concept selected should focus on a discrete and specific reporting requirement that encompasses the broadest range of industry participants possible.**
   - Further testing of machine readable technology should focus on a specific reporting requirement on a trial basis, that is applicable to the largest population of firms and the regulator community. Regulations that lend themselves to the potential of machine readable rules are those with explicit standards for reporting requirements, where clear rules can be created to allow data to be filtered and transformed as required and have no need for human interpretation. The recent EBA Benchmarking Exercise, with standard portfolios and annual frequency, is an example, as detailed further below.
   - It is however important that the scope of the next proof of concept also considers the limitations of existing legacy technology platforms and processes, and current priorities and investment in mandatory reporting initiatives, to have the highest chance of success.
   - Achieving efficient machine executable reporting will also be dependent on clearly defined notions which can be executed, data quality and standardisation of participants, and the internal complexity of existing reporting rule-sets. It must also recognise compliance and legal considerations concerning existing regulatory interpretation.
   - **AFME recommends** that the FCA, as part of a proposed industry joint task force, focus on the following steps to identify the next proof of concept scope:
     - Identifying which parts of the FCA Handbook map to other regulatory requirements stemming from other jurisdictions; and
     - Identifying which parts of the FCA Handbook are better suited to 'codification' into a machine-readable reporting format and where, by contrast, regulation is principles-based and requires flexibility in implementation and so is unsuitable for this process.

4. **A principle of 'report once, permission access to data once' should be applied to all future activity and solutions.**
   - This principle will allow for a firm to provide a single dataset to all relevant regulators which can then be used and applied to their individual regulatory objectives. Any exploration of new rules, requirements, or technology solutions should be considered with this principle in mind to reduce introducing any further complexity, or duplication, to the existing industry reporting system.

AFME would welcome the opportunity to discuss with the FCA our response to this call for input and to identify opportunities where we can support this important ongoing initiative.

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About AFME
[1]AFME represents a broad array of European and global participants in the wholesale financial markets. Our members comprise pan-EU and global banks as well as key regional banks, brokers, law firms, investors and other financial market participants. We advocate stable, competitive, sustainable European financial markets that support economic growth and benefit society. AFME is the European member of the Global Financial Markets Association (GFMA) a global alliance with the Securities Industry and Financial Markets Association (SIFMA) in the US, and the Asia Securities Industry and Financial Markets Association (ASIFMA) in Asia. AFME is listed on the EU Register of Interest Representatives, registration number 65110063986-76. Information about AFME and its activities is available on the Association's website: www.afme.eu.

Detailed Response

Q1: Are there more efficient ways to achieve machine executable reporting? Are there better ways to achieve the desired output at each step?

AFME acknowledges that to achieve the target end-state of automated regulatory reporting, and reap the benefits associated with this new model, there will be a period of required investments from participants. However, achieving efficient machine executable reporting will also be dependent on the data quality and standardisation of participants, and the internal complexity of existing reporting rule-sets. Mapping regulatory meaning (step 4) will be different across jurisdictions for firms that operate both regionally and globally. Developing common data elements that can be applied consistently within a firm, and across jurisdictions, will be important to increasing efficiency.
Indeed, efficient machine executable reporting will require standardisation of reporting requirements (by adopting an Interface Definition Language for instance), simpler derivation of reporting rules into executable format and downstream transformation into reporting. Implementation of the machine executable rules can vary but technology stacks should be structurally interoperable.

However, the allocation of significant resources on technology solutions to implement regulatory reforms, such as MiFID II in the EU, will require early and open engagement, and may pose challenges if there is a large-scale overhaul of existing reporting technology infrastructure in favour of a new third-party solution. AFME recommends that the FCA target a solution that is interoperable and can interface with existing systems and avoids a 'black box' approach where firms have no oversight of reports being submitted, and no opportunity for internal review.

Emerging technologies, such as the use of distributed ledger technologies where regulators could receive information as a node, could help to increase efficiency in the future as these mature.

Q2: What technologies exist that would mean that the manual mapping work in Step 4 could be automated?

At a high level, technology can support the regulatory reporting effort of firms by applying a systematic recording of business rules, data, and semantics in a traceable way, and by mapping business rules to a domain model. Business rules can then use a single domain model rather than needing to deliver on a case-by-case basis.

AFME believes that any technology that is deployed as part of this solution should initially aim towards being an integrating layer with firms existing reporting technology infrastructure, as manual mapping to ensure the FCA's ontology is correctly captured is likely to prevail in the first instances. As such, the technology should focus on translating and formatting data rather than necessitating any significant development of a firm's current underlying architecture.

Q3: What is the most effective mechanism for collaboration by firms for addressing potential regulatory reporting ambiguity?

AFME believes current mechanisms to address regulatory ambiguity are appropriate and can achieved through an active and collaborative dialogue between public and private participants. Public consultations, industry roundtables and forums and knowledge hubs and sandboxes are also effective mechanisms.

Collaboration with the industry should be as early as possible, open and transparent, to discuss regulatory ambiguity and work towards building consensus on how best to meet requirements. Engagement of firms through industry bodies and the development of best-practice guidance can help to deliver this consensus required.

Public consultations are effective and provide the opportunity for firms to comment and provide specific industry input into potential regulatory requirements. The publication of Q&A and supporting guidance from regulators with real industry working examples also helps address this ambiguity. Working examples provide regulators views on how specific requirements are implemented by firms to meet regulatory expectations.

However, this approach can also exacerbate a lack of common definitions and inconsistent semantics. New approaches should incorporate industry lessons learned and feedback to achieve a desired target end-state.

A third party could play a pivotal role, providing specific skills and expertise on a disciplined approach to semantics, helping the industry and regulators to develop consistent regulatory requirements, while retaining the control required. Similarly, an international mediator (FSB, IOSC), would allow the FCA's approach to be standardised and interoperable with other jurisdictions approach or requirements.

Furthermore, AFME believes the development of standards (by adopting an Interface Definition Language for instance), appropriate tools that can translate into technical definitions for execution and implementation approach, will be key to enable various stakeholders to collaborate more effectively.

Q4: Are there particular regulatory reporting requirements that could most easily be adapted to machine executable reporting? For example, is a natural starting point to focus on existing requirements that apply to a small set of firms or to a large group of firms? Would a new reporting requirement or an ad-hoc data request be more appropriate?

The starting point should be to focus on clarifying rules, using common definitions and data structures that can help to harmonise reporting requirements with other jurisdictions. There may be areas of the FCA Handbook where international standards apply, where there is significant effort on firms to comply or implement due to reporting frequency or complexity, or those which apply to the largest number of industry participants.

Reporting requirements suitability

Regulations that lend themselves to the potential of machine readable rules are those with standard reporting requirements, where clear rules can be created to allow data to be filtered and transformed as required e.g. deemed as having no need for human interpretation or judgment and based on triggers or thresholds where data and standards can easily be applied.

Reports on pure statistical type data, or simple transaction data, would provide a place in which to start exploring the practicalities of this change in reporting as opposed to those where more complex calculations and where data aggregation is required. For instance, financial reporting is an area where internationally recognised accounting standards (IAS, IFRS) can be more readily applied to codification. Another example would be to use an industry benchmarking exercise that happens on an annual basis[1], as this is potentially less likely to disrupt crucial business as usual (BAU) processes and systems.

The requirement should be relatively 'lightweight' in its size (e.g. limited number of fields) and limited in its frequency (e.g. once per year), to increase the chance of success by balancing the initiative ambition and complexity. Where possible, the requirements should be acceptable and relevant to the largest number of industry participant firms.

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[1] The EBA has an annual requirement for institutions that use model approaches to submit information to allow them to compare the consistency of RWAs calculated by different institutions using internal models. The EBA provides standard benchmark portfolios which each institution will book in their systems and run through the IMA calculations. For the most recent submission, only portfolios that would be suitable for inclusion in models approved by 31st December 2017 were required to be included i.e. credit and equities phase 1.
The legal framework for the above is provided by Directive 2013/36/EU (CRD) and in particular Article 78 thereof as well as by the following technical standards provided by the EBA: a) Regulatory technical standards (RTS) laying down standards for competent authorities as regards the assessment of the internal approaches adopted by institutions and the procedures for sharing of those assessments between competent authorities; b) Implementing technical standards (ITS) specifying the benchmarking portfolios and reporting instructions for institutions to be applied in the annual benchmarking exercises.
A summary of the information requested is as follows:
- Initial Market Valuation (IMV) for the relevant portfolios booked on 12th October, valued on 27th October.
- High level details of the VBM and SVBM calculations, including methodology, liquidity horizon, observation period, data weighting and add-ons, along with the results of the calculation.
- One year of P&L vectors for each portfolio.
High level details of IRC calculations, including number of modelling factors, LGDs, PDs, liquidity horizon, transition matrices, along with the results of the calculation.

By contrast, trading data (such as MiFID2, MAR), due to its volume, would be more complex to codify without assumptions or clearly defined criteria, such as the end of day or daily average of a given value (such as a firm's Profit and Loss Value at Risk).

Existing reporting that takes place on a regular basis would be advantageous to consider and expand to a second phase, as there should be a mature operating model that support the obligation where the data flows, and potential issues and outputs for comparison are available. However, consideration should be given to the potential for disruption of applying a new technology solution to regulatory requirements of high importance, submitted on a very regular basis.

In the long term, for a change to be beneficial it would ultimately need to focus on areas where there is significant effort on firms to meet regulatory reporting requirements. However, a complete solution for any given obligation would be needed, across providing Net Asset Values (NAVs) as an example, to avoid firms needing to support multiple operating models to meet a single obligation.

<u>New reporting requirements or ad-hoc data requests</u>

Not all new requirements or ad-hoc data requests should be assumed to be any easier to adapt to machine executable reporting than existing or regular requests.

<u>Classification methodology</u>

We suggest the following high-level categories as a method to identify and prioritise where machine readable reporting could be applied in the FCA handbook:

- **In scope**:
  - Primary focus: Areas where codification could be readily applied, such as financial reporting, or where codification is complex but could be achieved with defined criteria, such as trading data.
  - Secondary focus: Areas where codification could in theory be achieved but may not be cost-effective because additional challenges need solving, such as governance, operational controls, processes, liability issues, treatment and storage of industry data, third party reliance or the need for common domain models for data.
- **Out of scope:**
  - Areas where codification is not appropriate, such as principles-based regulation requiring flexibility in judgment or interpretation.

Q5: Are there any regulatory rules or policies that could be introduced to help implement machine executable reporting?

To support machine executable reporting, a requirement for all future regulatory technical standards to be written with the concept in mind could be beneficial (e.g. rule structures) enabling solutions designed to easily read and correctly identify/interpret reporting requirements. This could be encouraged through the adoption of policy, with consideration to liability risks, to ensure machine readable rules are considered, where possible, for the regulatory requirements whilst they are being defined. The requirements should be available in both machine and human readable format so business interpretation and verification of the requirements can be performed.

AFME also recommends,
- **The FCA should adopt a leading role in developing a roadmap,** with clear identified goals and milestones, highlighting efforts required from industry participants and involving other pan-European and global regulators. The FCA should set success parameters and dates for completion, while letting market participants and technology providers, come together to complete the solution.
- **As well, the FCA should create an industry task force** to progress the activities identified to the next stages of this initiative. The FCA should here take a coordinating role in orchestrating activities with the industry and other stakeholders involved. This would be beneficial in providing clear direction to the industry to progress the required activities (such as the

development of or alignment of standards) and ensure any future solution could be scaled globally.

Q6: Are there any specific regulatory rules or policies that could act as a barrier to implementing machine executable reporting?

Yes, AFME believes there two areas of regulatory rules or policies that could act as a barrier to implementing machine executable reporting:

1. Regulatory rules related to how sensitive data must be protected, including the situation where multiple regulatory obligations apply and potentially share the same data set that is being read:
   o *Currently the logic applied as part of an implementation means that information is protected where necessary for different requirements. Machine reportable rules would need to ensure that access to data is limited to the specific information required.*

2. The functioning of regulations that permit delegated reporting services:
   o *It will be important to ensure that only the data that the firm receiving a delegated service has approved to be shared is accessed.*

Furthermore, we believe there are additional barriers or challenges that will need solving to achieve machine executable reporting. These are:
- Lack of coordination between regulatory stakeholders, industry participants and technology providers;
- The approach developed is not holistic in nature and therefore is not aligned with other regulatory initiatives or limited scope and footprint;
- Liability with regards to the use of machine executable reporting (e.g. if the reporting fails because of a technical issue, particularly in open source or commercial software not controlled by the reporter);
- Appropriate outsourcing arrangements in relation to third parties (e.g. similar to point on liability above);
- Secure processing and storage of firms' and their clients' data; and
- Common standards for data domains.

Q7: What are the opportunities in developing an open source rather than a commercial solution? How can we best use open standards and open collaboration to agree and implement the underlying architecture and approach?

The industry should strive to develop open source solutions to manage costs for this type of implementation while promoting an interoperable standard and encouraging different players to contribute. An open source solution is more likely to:
- Satisfy a larger number of firms and have a global application if based on internationally recognised standards;
- Reduce the risk of dependence on a small number of providers of the underlying technology, and;
- Allow for third parties to provide specific skills and expertise, and provide a disciplined approach to semantics, helping the industry and regulators to develop consistent regulatory requirements.

This open source approach would essentially operate as a 'data-as-a-service' Application Programming Interface (API). Any open source solution across the industry must be based on a strong data taxonomy to link regulatory reporting requests to a common logical data model, and for trade entities to a firm's physical data model. It should not be excluded that we may also see financial institutions going for a 'Utility as a service' to maximise the benefit of standard data model, regulatory standards and efficient reporting across all key regulatory initiatives.

Q8: Do you agree with our view of the potential benefits of machine executable reporting?

AFME agrees with the benefits listed by the FCA on machine executable reporting. We suggest that it could provide:

- Increased clarity and ability to analyse larger data sets: removing ambiguity in regulatory requirements should save valuable time spent in interpretation and provide comfort to firms that they are providing the data required. Conversely regulators should receive complete and accurate data and comfort that firms are compliant;
- Increased efficiency and speed of execution of regulatory reporting activities: reductions in overhead costs should enable firms to focus on other business critical matters and reduce operational risks stemming from manual processes;
- A common standardised baseline for future automation work;
- More responsive regulation: as requirements could be mapped instantly to explicit meanings it would make it easier to identify, process and map data to requirements enhancing quality of regulation; and
- Higher quality data: enabling higher analytical flexibility, both for firms to construct more flexible and granular MI and for regulators to conduct systemic risk analysis and help promote financial stability through early identification of potential risks.

Q9: How do we ensure that the potential benefits and costs are appropriately shared across the industry?

We interpret this question as the overall benefits and costs to the industry and regulators of implementing a new model for regulatory reporting (i.e. machine executable), rather than the allocation of financial efforts to develop the solution proposed.

AFME acknowledges that to achieve the target end-state involved firms, regulators and third-parties will be required to invest, therefore costs should be appropriately spread.

We believe that the following should be considered to ensure that the potential benefits and costs are appropriately shared across the industry:
- A plan that encompasses both short-term (1-3 years) and long-term (5-10 years) objectives should be developed, which identifies options and costs for the implementation across the industry;
- An assessment, with agreed criteria, should be used to identify the FCA Handbook requirements that are most suitable for automation. The assessment should identify those requirements that achieve the largest cost benefit uplift for the industry; and
- Strategic partners, such as technology providers, international standard setting bodies, and other observing regulators (e.g. European Commission, CFTC, MAS) should be included. Participation should aim to share the costs of the initiative in an appropriate manner.

AFME believes that the costs of any implementation need careful consideration. There may be a requirement in the near-term for the costs of the initiative to be shared whilst proof of concepts on pilot regulations are developed. Once achieved benefits are visible, the longer-term costs of implementation could be absorbed by firms as part of their strategy for the implementation of new regulations and re-engineering of existing obligations which would need to be budgeted for as part of ongoing regulatory change programs.

Caution is required to ensure that costs on the industry are not borne in the majority by a few larger firms. For this to be of benefit to all participants the costs of any significant change in approach need to be shared appropriately.

Q10: Can you provide indicative costs of the current expense of regulatory reporting to your firm? It would be helpful if you are able to separate these costs by specific reporting requirements.

AFME does not have this data.

Q11: Which aspects of the current system (interpreting reporting requirements, changes to systems and processes, ongoing data submission, compliance and legal oversight) result in the most significant costs for firms?

AFME views various reasons explaining the overall cost of regulatory reporting activity. These are for example:

- Customised or legacy applications that require upfront efforts to design, build and implement a regulatory solution, followed by ongoing maintenance costs to meet changing requirements;
- Complex IT architectures, a lack of common standard, logical data model, lineage maps and poor quality of data, all resulting in the costly implementation of regulatory requirements;
- Poor interpretation of regulatory rules and impact analysis could result in non-compliance, resulting in fines for firms;
- Lack of Straight Through Processing (STP) and manual interventions in the reporting process could increase the cost of implementation;
- Siloed approach and lack of reuse in the architectural framework could mean duplication of efforts and cost, increasing the cost of delivery.

All of the above represent significant costs during the implementation and the ongoing operating state of existing systems and processes. While project implementation costs (e.g. technology, developers, regulatory specialists, legal and compliance advisory, products subject matter experts, consultants) are significant, so too are the ongoing costs of submitting data (e.g. trade repository and approved porting mechanisms (ARM) charges that result in ongoing significant costs to firms).

Furthermore, the ongoing costs to support the controls and overall operating model for regulatory reporting obligations can be significant once they are in a business as usual (BAU) state. Where firms have multiple lines of business and complex products the ongoing costs can remain significant to support the correct level of resourcing to meet the ongoing regulatory processes.

Q12: What role would it be most useful for us to play in the progress of this work? Who should take the lead: FCA, industry or a combined approach?

AFME sees a collaborative approach between the FCA and the industry as the most useful way to progress this initiative. AFME recommends that the FCA creates an industry task force to further progress this initiative. The use of an independent third party to manage the governance could help with balancing the needs of all sides.

In addition, we recommend the FCA consider the following key steps;
- Engage with global regulators to standardise the approach developed;
- Engage with relevant third parties to support technical or governance needs; and
- Ensure continuous engagement of stakeholders so that the future solution developed is coordinated and harmonised.

The approach would need to be articulated in a roadmap with clearly defined roles and responsibilities. AFME recommends the FCA to take a leading role in:
- Defining a timeline with milestones to achieve different goals for baseline, tactical, strategic, target end state;
- Defining the date and parameters to achieve the set objective: the FCA should provide a coordinating role but leave to industry how the solution will be created; and
- Identifying stakeholders involved in the different phases: the FCA should involve financial service firms to support the design phase, then technology providers to solve the for the technical solution and other regulatory stakeholders to observe/participate to expand scope to other geographies.

Q13: Are there existing models of collaboration between industry and regulators, both within and outside financial services that could be adopted?

We acknowledge as relevant the current mechanisms for collaboration by the FCA such as public consultations, industry roundtables, forums, knowledge hubs and sandboxes. Collaboration is particularly important when it comes to interpretation and translation into machine readable language of existing handbook text. The FCA's interpretation of the text may be different from the industry's but should not be imposed without due consultation.

We view current industry working groups and roundtables which already exist as successful for collaboration, and the increased participation of regulators in these forums to provide insight and answer queries is highly recommended. Public consultations are beneficial in allowing the industry to comment on

proposed regulation and what it means to the industry, and to highlight potential issues before coming into force. However, we encourage the FCA to incorporate industry lessons learned and feedback as key to achieving the target end-state.

AFME also identified the FCA Regulatory Sandbox ('Project Innovate') as a leading example for collaboration that could be leveraged to further examine the potential of this solution.

Q14: Do you have a view on what kind of funding model would be the most appropriate to progress the further development of the initial prototype design?

AFME views any model developed as needing to incentivise participants. This can be achieved by supporting:
- A solution that is global in nature;
- A collaborative approach between public, private and fintech participants;
- The development of business cases, financially and operationally, implementable by participants;
- Adoption of an agile delivery approach to provide quicker tangible deliverables; and
- A fair distribution of both the contribution and benefits for participants involved in developing and adopting an industry solution.

Q15: Can you provide detail on the business case potential of a move toward machine executable reporting for your firm or for firms of different sizes in general?

AFME acknowledges there is significant benefit to achieving the proposed target end-state whereby the adoption of machine executable reporting will make it easier for firms and regulators to complete reporting activities thereby reducing overall regulatory reporting work. However as previously mentioned, any business case benefit must be balanced against the initial investment, adoption cycles and resources required to execute the change, which we view as a necessary step to achieve the desired goal. Equally, future costs may be introduced by an indirect consequence of increased reporting requirements or complexity being introduced at a regional or global level.

While in principle achieving more efficient regulatory reporting may allow firms to reduce costs associated with regulatory reporting activity, the actual impact of machine executable reporting will be dependent on several contingencies where further clarity from the FCA is required:
- The relative size of the short-term cost of development compared to the medium and long-term efficiencies of the new solution; and
- The potential for economies of scale if different jurisdictions are in alignment with the solution developed.

Q16: Are there any potential legal or other unintended consequences associated with a move toward machine executable reporting?

AFME assumes that for the solution to be adopted the FCA's approach will need to be interoperable, so that firms can meet regulatory reporting requirements irrelevant of the technological path chosen.

Furthermore, AFME believes the FCA should consider the following potential legal and unintended consequences of machine readable executable reporting:
- Consideration to liability issues for unintended outcomes;
- Future regulations that may prohibit this requirement and necessitate significant overhaul of implemented industry solutions;
- Additional data queries resulting in additional actions on firms adopting this approach;
- The treatment of exceptions and error where a mapping to firm's data is either incorrect or generates errors; and
- How firm's data should be handled from a privacy and security perspective.

Q17: What is the most appropriate model to fund the development and ongoing run costs of machine executable reporting?

AFME has no further comments over and above those provided on Question 14.

Q18: How can we ensure that the development of this proof of concept benefits from collaboration with international regulatory counterparts?

Collaboration with international counterparts, though a relevant mediator (e.g. IOSCO, FSB), is essential to mitigate situations where cross jurisdictional regulation is reported in different ways depending on the NCA, as this would result in multiple flows and operating models which are complex and potentially increase operational risks associated to reporting.

Collaboration with all regulators internationally would be of benefit as it would encourage consistency across jurisdictions on regulatory terminology, definitions and reporting structures, resulting in further efficiencies, where a single method of providing data to regulators could be achieved in the long-term.

To ensure the development of the proof of concept benefits collaboration with international regulatory counterparts, AFME believes as a minimum the FCA should target inviting as participants or observers' regulators from G20 countries. The next stages of this initiative must focus on the alignment of standards, definitions and data structures between regional and global regulatory counterparts, to realise the potential of machine readable and execution regulation.

Q19: What kind of standards would assist the implementation of machine executable reporting? For example, would a common data model need to be established?

AFME sees three areas where standards would assist the implementation of machine executable reporting:

1. **Regulation and rule structures**
   - For example, this could be based on and include natural language, legal form and tacit ontology.
   - AFME views a more scientific approach to define these, such as using rule tables or decision trees, as key to support the achievement of more precise requirements and a basis for future automation.
2. **Domain model for regulation**
   - A domain model for regulation is likely to be an important step to provide an unambiguous baseline for the industry;
   - This would assist with educating both the industry and regulators on the critical components of the regulated activity; and
   - Create a two way "feedback loop" on the completeness and definition of rules.
3. **Domain model for firms**
   - Standardise rules at a more granular or process-specific level within firms.