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Conduct Analytics

Insights-led and Data-driven – The Future of Conduct Risk Management

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Foreword

AFME, in collaboration with PwC, is pleased to publish "Conduct Analytics – Insights-led and Data-driven: The Future of Conduct Risk Management"

One of the challenges consistently highlighted by our Members is the need to develop better data and analytics relating to Conduct, in order to identify and (ideally) pre-empt Conduct Risk. In this paper we explore how firms can address this by evolving their Conduct Risk Management Frameworks to make better use of Conduct Analytics, supported by a clear and effective Conduct Analytics Framework.

For many banks, the use of Conduct Analytics is a journey, with some firms further advanced than others. In recognition of this, we provide a blueprint for firms to use as they develop and review their frameworks, focusing on an "insights-led and data-driven approach".

There are several key factors that will underpin the success of the advanced use of Conduct Analytics:

- Firstly, it is important for firms to recognise the value in using Conduct Analytics to efficiently identify patterns and trends which in turn provide valuable insights across their entire business.
- Secondly, approaches should be agile and evolve in line with the needs and progression of the business, calibrated to identify new risks as they emerge and periodically reviewed to ensure their effectiveness.
- Thirdly, the paper encourages firms to strengthen their efforts to measure and monitor culture and suggest that in doing so, firms will be able to reduce the additional policing of individuals.

Banks have undertaken considerable work in recent years in respect of culture, recognising that their corporate culture sets the tone for individual behaviours. Collaboration is key and involving all relevant areas of the business – and also involving regulators – in the development of the framework will support the development of meaningful metrics.

It is also clear that technology can and should play a central role. Whilst there is no silver bullet, there is an opportunity to develop a technology architecture blueprint that leverages existing systems to facilitate data collection, perform analytics and support more predictive analytics.

AFME represents European wholesale firms and this paper is specifically targeted at its Members. Whilst it is not intended to be an exhaustive list of required changes and the key points covered in this paper may not apply to all firms, we expect much of what follows will be relevant across the industry. In planning and executing their Conduct Analytics frameworks, global firms will of course have to consider differences in local law and regulation, as well as the specifics of their unique business model.

AFME would like to thank PwC for their support in the production of this report, as well as Members from AFME's Compliance Committee, all of whom made contributions that were integral to the development of this publication. We are grateful to all those who have participated in this paper, including Member firms and European regulators.

James Kemp
Managing Director
GFMA and AFME

Conduct Analytics

Insights-led and Data-driven: The Future of Conduct Risk Management

Executive Summary

Introduction and problem statement

The future of Conduct risk management will be insights-led and data-driven. A core component is Conduct Analytics that deliver insights into the risks that the institution is running today and predict the likely risk exposures of tomorrow. This is a key building block of the future state.

Banks are continuing to evolve on their Conduct Analytics journey to be more comprehensive, predictive and advanced in their analytics as well as insights. They face a number of challenges. The development of more sophisticated and robust analytics is hampered by legacy systems that do not easily yield the data required to feed the analytics and underlying behavioural models that generate predictive risk indicators. The need to accommodate remote working has further hindered efforts to develop holistic and insightful risk metrics. Individual behaviours inform culture, therefore Conduct Analytics needs to consider the impact on culture. This is not an easy task; Conduct and culture are subjective and qualitative and therefore more difficult to measure.

Objective

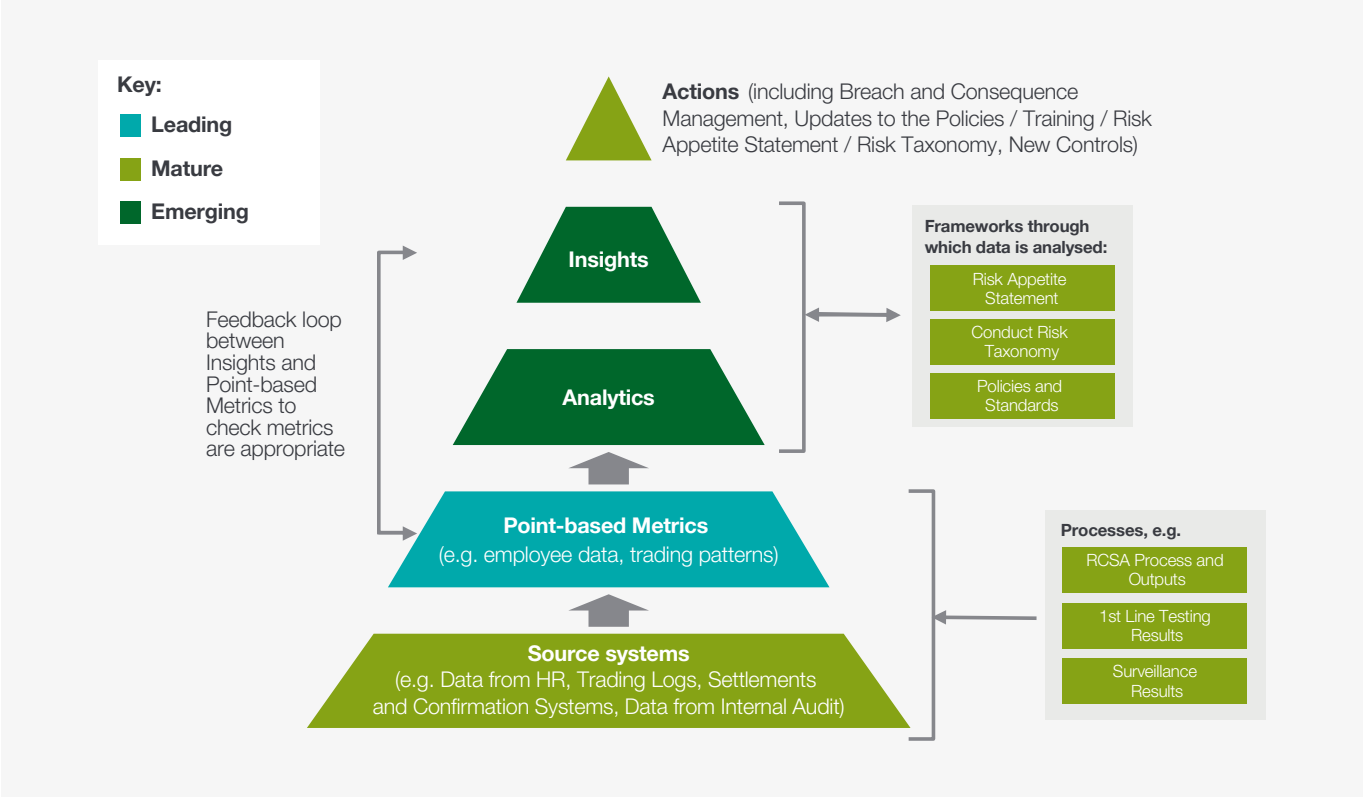
The Association for Financial Markets in Europe (AFME) has commissioned this paper to develop a blueprint for the banking industry that members can leverage as they continue to evolve and refine their Conduct Analytics Frameworks.

Approach

The content of this paper is based on a survey completed by 25 AFME member firms, supplemented by structured discussions and a number of additional meetings with 21 AFME members. Two regulators also provided input on their expectations in relation to Conduct Analytics.

Conduct Analytics Framework

This paper provides a framework for Conduct Analytics, which demonstrates how existing components of Conduct Analytics fit together and refocusses these around an insights-led and data-driven approach.



To determine the insights they are seeking from their Conduct Analytics, banks should answer the following questions:

1. What are the insights we are seeking to gain to enable the right actions to be taken?

2. Are our current analytics (e.g. trend analyses) appropriate to derive these insights?

3. What are the data points / metrics required for these insights?

Key benefits of the Conduct Analytics Framework

Many institutions are seeking to utilise the data available to derive insight. This paper recommends that banks think about the insights needed, the related analytics, and then determine the underlying data points / metrics required to generate the insights required. The insights derived and actions taken will also facilitate identification of root causes of conduct-related issues (e.g. through layering of additional metrics to get more insights on a trend) and enable more focused investment.

Opportunities and considerations

There are opportunities to derive additional insights by using a variety of metrics. For example, whistleblowing incidents can be overlaid with metrics around time taken for escalation to relevant committees, actions taken and time taken to resolve the incidents, to reveal further details around the handling of the whistleblowing, in addition to the whistleblowing event itself.

There are also a number of considerations for banks to evaluate as they build out their Conduct Analytics Frameworks; for example, data privacy laws can impede the collection of all the desired data points and there can be bias arising through the use of certain subsets of data. There can also be challenges around bank-wide engagement, particularly with the Business, to derive ever more insightful Conduct Analytics in a systematic way across the organisation. For example, many banks would benefit from input into insights based on the sales and trading knowledge from the Business.

Key messages in this paper

- **Identification of patterns and trends:** The Conduct Analytics Framework allows banks to identify patterns and trends, which will lead to insights. The current insights may provide weak signals symptomatic of root causes; layering of additional metrics may help in identifying the root causes.

- **Conduct Analytics Frameworks need to evolve continuously to be sustainable:** New emerging risks arise based on how the business is changing. Banks need to continue examining the external environment and be forward-looking to identify emerging risks through means such as horizon scanning and new ways of working. This will allow them to determine periodically whether metrics being used for insights remain appropriate or need to change, e.g. through review of their broader Conduct metric set.

- **Monitoring of culture:** Banks should strengthen efforts to measure and monitor culture. The regulatory focus on individual accountability continues, but regulators are also moving towards examining corporate culture and how this sets the tone for individual behaviours and enables the right client outcomes. This will reduce the focus on additional policing of individuals, which is becoming increasingly difficult due to data privacy and local labour laws.

- **Engaging the Business:** The Conduct Analytics Framework cannot be implemented by Compliance alone. The Business is the First Line of Defence and is responsible for managing Conduct Risk. The Business therefore needs to collaborate with Compliance and with other functions such as Human Resources and Technology to allow the Bank to derive the right insights and actions as required.

- **How to make the best use of technology:** There is no single technology solution that will resolve all considerations relating to Conduct Analytics. The technology architecture blueprint presented in this paper leverages components that are already in place in banks. Technology can be used to facilitate data collection, perform analytics and support more predictive analytics. Obtaining broader, holistic views of individuals (e.g. websites visited, applications used) requires analysis of unstructured data, which can be enabled by the use of Machine Learning and Natural Language Processing.

- **Working together:** To a large extent, banks need to address the considerations outlined in this paper. Nevertheless, members can collaborate with other banks on industry-wide issues, such as sharing good practice. They can also work with AFME to lobby and provide suggestions to regulators e.g. for data privacy and remote and hybrid working.

Paper structure

- **Section I. Background**
  Explaining the background, problem statement as well as objectives and approach to the paper.

- **Section II. Introduction**
  Providing definitions and further context for this topic, including regulatory expectations.

- **Section III. Conduct Analytics Framework**
  Describing a blueprint target framework based on discussions with AFME members and core metrics, around employee and Market Conduct.

- **Section IV. Opportunities**
  Explaining opportunities in maximising returns on investment and building out Conduct Analytics Frameworks that are insights-led and data-driven.

- **Section V. Considerations**
  Setting out the considerations involved when building out Conduct Analytics Frameworks and recommendations on how to progress both individually and collectively, including in relation to technology.

- **Section VI. Next steps and Continuing the conversation**
  Recommending next steps based on the themes explored in this paper.

Section I. Background

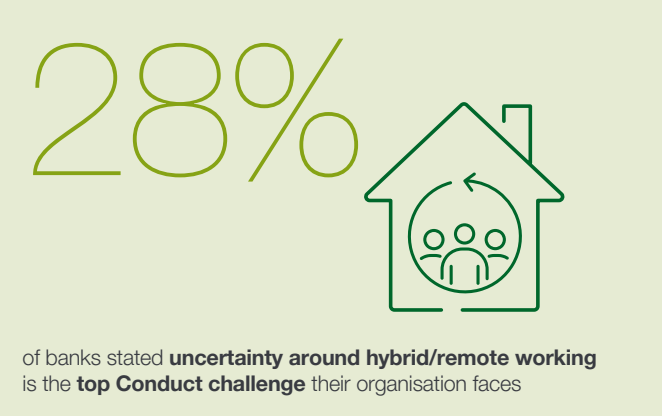
Background and objective

The future of Compliance will be insights-led and data-driven. This paper builds on two recent papers published by AFME, 'The Scope and Evolution of the Compliance Function' (2018) and 'The Future of the Compliance Control Environment' (2020). It explores in further detail one of the key challenges that AFME members identified: the requirement to develop better analytics relating to Conduct and culture and to identify, and mitigate, Conduct Risk. The majority of banks are on a journey in developing their Conduct Analytics Framework. The objective of this paper is to set out a blueprint for a Conduct Analytics Framework (see Section III. Conduct Analytics Framework) and describe how banks can develop their framework further, addressing the opportunities and considerations they may face as they evolve.

Problem statement

Regulatory expectations of Compliance functions are to be more strategic and forward-thinking. As per 'The Starling Compendium: Culture & Conduct Risk in the Banking Sector' (May 2021), the previous focus was on 'detect and correct' and the new aspiration is to 'prevent and predict'. It is difficult for banks to build more sophisticated analytics to achieve this because:

- Legacy systems and processes have been enhanced on a piecemeal basis to meet regulatory requirements, so they are not always optimised to support Compliance in being more strategic and predictive.



- There have been additional complexities introduced by remote working, whereby systems had to be rapidly upscaled for remote monitoring and surveillance whilst considering ever more stringent data privacy issues. This has hampered efforts to develop holistic risk metrics.

Additionally, whilst the focus on individual accountability continues, there is increasingly an emphasis on behaviour and culture. Regulators are clear that it is not just about what is written in policy, but how this manifests in culture, which sets the right tone for individual behaviours. Awareness of culture can help identify risks to customer interests and address root causes, as explored by the Dutch Authority for the Financial Markets. Therefore Conduct Analytics need to consider culture; both conduct and culture are subjective and qualitative, making them challenging to measure.

Approach

A survey was developed in collaboration with AFME members to understand their perspectives on Conduct Analytics, including:

- Current and emerging challenges relating to Conduct Risk;
- Measurement of conduct;
- Maturity of the Conduct Analytics Framework;
- Tools and technologies used for Conduct Analytics;
- Engagement with lead Regulators; and
- Future plans for Conduct Analytics.

This survey was completed by 25 banks from across Europe. 21 of them were subsequently interviewed to explore their responses in more detail. There were multiple follow-up discussions with a number of these banks to cover additional points in further depth. All data, content and/or examples provided by AFME members have been anonymised and aggregated. Two regulators also provided input on their expectations in relation to Conduct Analytics.

Section II. Introduction

Conduct Risk

Conduct is a widely used term. It has slightly different connotations depending on the bank in question. All banks monitor Employee Conduct and Market Conduct, and agree that there is a linkage between conduct and culture. Conduct Risk falls within the ambit of non-financial risks and is largely outcome-driven.

Definition of 'Conduct Risk' and 'Conduct Analytics'

There is no universal definition for 'Conduct Risk', but the term generally has components relating to appropriate behaviours and customer outcomes. For the purpose of this paper 'Conduct Risk' refers to the risk that actions by the organisation or an individual lead to client detriment or have an adverse impact on the stability or integrity of financial markets or on effective competition (based on FCA guidance). 'Conduct Analytics' refers to the insights that can be derived from the analysis of data sets, metrics, Key Risk Indicators or other information gathered on conduct and are used in managing Conduct Risk, rather than simply the metrics themselves.

of banks stated that the **definition and measurement of Conduct** is the **top Conduct Analytics challenge** their organisation faces

Measurement of Conduct

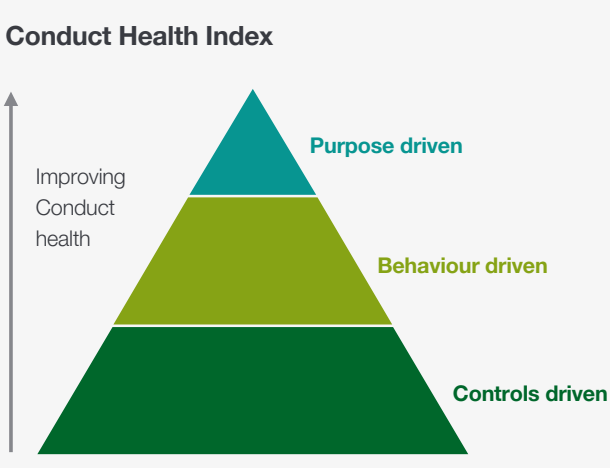
Measurement of conduct is a challenge for many banks. It is a topic that is largely subjective. The non-financial nature of Conduct Risk means that judgement is needed when ascribing numerical values to Conduct metrics. Different individuals could reach different conclusions with the same data sets. No definitive guidelines exist for how to measure conduct, meaning banks are developing their own approaches independently, with limited opportunities to share good practice.

Through the survey with AFME members, the definition and measurement of conduct was rated as the joint second challenge, with 28% rating it as their top challenge.

Good Conduct

In the survey, most banks responded that misconduct and poor conduct are measured and monitored effectively. However, the measurement and monitoring of good conduct are often considered to be developing, with 32% of survey respondents stating that their bank does not measure and monitor good conduct. Every bank will have a slightly different interpretation of good conduct as this is not a binary distinction, in the way that measuring bad conduct is binary (e.g. unauthorised trading is not allowed as defined by rules, which makes it easier to specify controls in accordance with the rules, measure against these controls and then take action).

More banks are starting to consider their conduct health,[1] which is illustrated in the diagram opposite, and covers good conduct as well as bad conduct. Banks are continuing to look at controls around misconduct, an area where they are relatively advanced, particularly if they have faced fines or regulatory orders on conduct. They are increasingly focusing on behaviours, whereby they are encouraging good conduct as part of the overall culture. They are on a journey in this area as behaviours are intrinsically harder to measure. A small minority of banks are also considering how the purpose of the bank helps them to drive the right culture and decision making that the bank would expect, especially in a remote working environment where it is less easy to consult and collaborate with colleagues.



1 https://www.pwc.co.uk/issues/crisis-and-resilience/covid-19/from-controls-to-purpose--conduct-in-the-covid-19-world.html

Culture

Culture is typically considered to encompass a collective set of behaviours and codes of conduct. Individual conduct can be a manifestation of the corporate culture and can contribute towards that culture (this interplay is explored further below).

Ownership for the different components of this interplay is often dispersed within banks, with Compliance owning the Conduct Risk Framework, the Business being accountable for mitigating Conduct Risk and Human Resources (HR) owning culture. When roles and responsibilities are distributed across the bank, the overall impact and ability to join the dots can be diminished where responsibilities and hand-offs are not clear. Organisationally, two banks involved in this survey indicated that conduct and culture were combined in one role based within Compliance. Considerations around ownership are discussed in Section III. Conduct Analytics Framework.

When considering culture in the context of this paper, the distinction is made between 'risk culture' and 'corporate culture'. Risk culture is a more tangible type of culture related to risk taking by the Business and is linked to the Risk Appetite Statement, whereas corporate culture relates to the overarching culture of the bank. Risk culture and corporate culture evolve over time and are unique to each bank, based on the bank's history, as well as being influenced by the external context. In recent years, all banks have examined their overall corporate culture with a specific focus on risk culture, aiming to encourage the right conduct.

Culture is seen by regulators as setting the right tone for individual behaviours, therefore Conduct Analytics need to consider culture. Metrics related to culture can be determined from staff surveys, with the following caveats that can lead to bias: the positioning of the questions; the understanding of the individuals completing these surveys who often perceive their organisation's culture as 'the norm'; 'impression management' by staff (i.e. attempts to create a favourable perception); those who are less engaged are less likely to complete surveys. Conduct and culture metrics can be layered onto Conduct Analytics once an initial set of analytics has been produced, allowing deeper analysis into a particular group of metrics, whether cut by specific teams, Business Units, functions or senior management (this is explored in further detail in Section IV. Opportunities below - 'Use of adjacent metrics').

Regulatory expectations

As part of this paper, discussions were held with two European regulators, but engagement on this topic across the wider set of regulators has not been high. Many European regulators are prescriptive, while others are more principle-based, and there are nuanced expectations in different jurisdictions to comply with local regulations. The key themes relate to:

- **Data-driven approach:** Regulators are increasingly expecting banks not only to monitor activity, but also to derive insights from the data they generate and consume as a consequence of their monitoring activity. However, this leads to additional challenges e.g. around data privacy (see Section V. Considerations).

- **Identification of root causes:** Regulators understand that banks address individual issues, but would like them to identify and resolve root causes more systematically to prevent issues from recurring.

- **Shift from sole focus on individual conduct towards culture as well:** Regulators are looking at conduct in the round through consideration of culture. This is as opposed to simply scrutiny over each individual transaction or each individual. Individual accountability remains important and is managed in the UK via the Senior Manager and Certification Regime, with similar regimes being embedded in other jurisdictions, such as the proposals for a Senior Executive Accountability Regime (SEAR) recently published by the Central Bank of Ireland. However, the focus of regulators now includes the two-way interplay between individual conduct and corporate culture and how this results in the right behaviours towards clients. The Dutch Authority for the Financial Markets (AFM) states that 'Awareness of conduct and culture helps to identify potential risks to customers' interests at an early stage and address the root cause of incidents.' This then enables appropriate intervention to encourage the development of products and services that serve the interests of customers. Regulators are reviewing the incorporation of Conduct Risk in Risk Appetite Frameworks and policies as well as how these are embedded in practice, reinforced by corporate culture and tone from the top.

Given the lack of engagement and direction from a broader set of regulators, this is an opportunity for banks to assist in shaping and defining elements of industry practice in relation to Conduct Analytics. This is also an opportunity to align with each other on how best to use existing metrics to demonstrate effective governance and management of risk and to report on this to regulators.

Expectations of Boards

The joint ESMA and EBA Guidelines on the assessment of the suitability of members of the management body and key function holders under Directive 2013/36/EU and Directive 2014/65/EU (published July 2021) stated the importance of improving the diversity of management bodies, in particular gender balance to avoid 'groupthink'. Discussions with AFME members have found that even with diverse boards (in terms of diversity and inclusion metrics that can be more quantifiable e.g. age, gender and ethnicity), there remains a risk of groupthink both at board levels and below. There is further work to be done to encourage 'cognitive diversity' - a diversity of views, whereby people are willing to challenge accepted norms, prevailing views and provide different insights on the more subjective elements of conduct. It is particularly important for senior leadership interpreting and analysing Conduct metrics to have diversity of thought to stimulate debate and avoid groupthink.

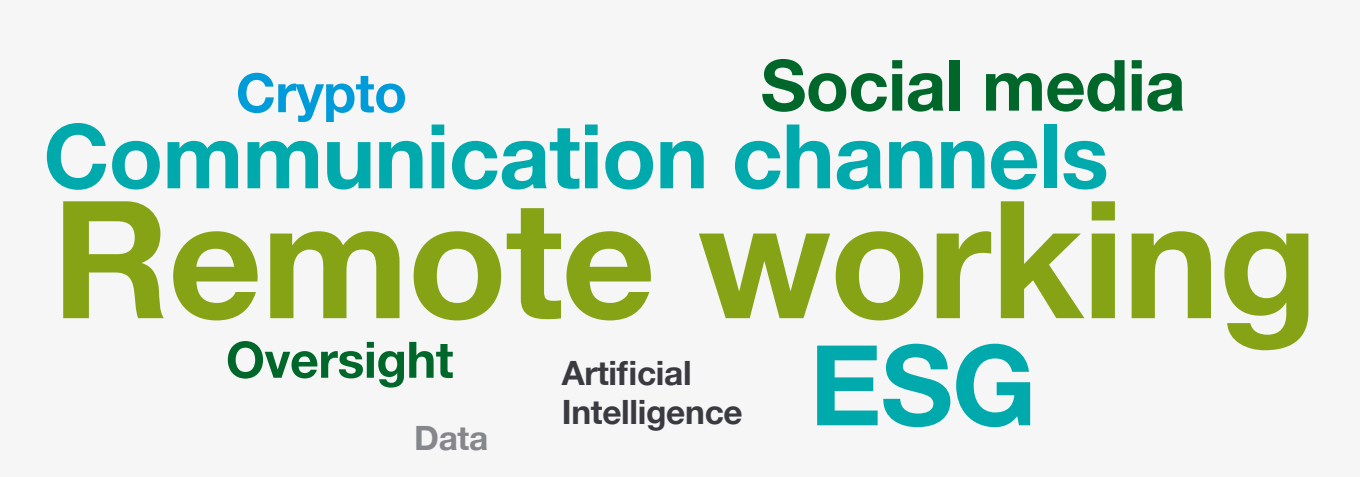
Given regulatory expectations on governance, Boards and governance fora should expect to receive accurate and timely data on conduct to understand trends, insights and any issues requiring escalation. They need to oversee the actions that address the insights, such as consequence management and amendments to the Risk Appetite Statement and hold those responsible to account.

Expectations of clients and society

There has been a paradigm shift in the expectations of clients and wider society around banks and their conduct following the 2008 financial crisis and during the pandemic. Clients have increased their expectations of banks in recent years in terms of level of service. Additionally, there are regulatory expectations around banks being able to demonstrate that the fair treatment of customers is at the heart of their business, such as via the Financial Stability Board's and OECD's 'G20 High-Level Principles on Financial Consumer Protection'. Society also has expectations of the conduct of banks in relation to sustainability and consumer protection. For wholesale banks, the heightened focus on consumer protection leads to the primary impact being on reputational risk initially, but it may extend to impact on behaviours towards clients.

Emerging Conduct Risks

The top emerging risk articulated in the survey and interviews with AFME members is around the new ways of working in a remote environment, including difficulties with monitoring and supervision (which are explored more broadly in Section V. Considerations). Other themes include ESG, such as the recent focus on greenwashing, and challenges around cryptocurrencies. Some issues such as those relating to Artificial Intelligence and data are not new, but there are additional nuances emerging around these. The following word cloud has been compiled from the emerging Conduct Risks that are of most concern to AFME members, with larger text indicating that more banks named this.



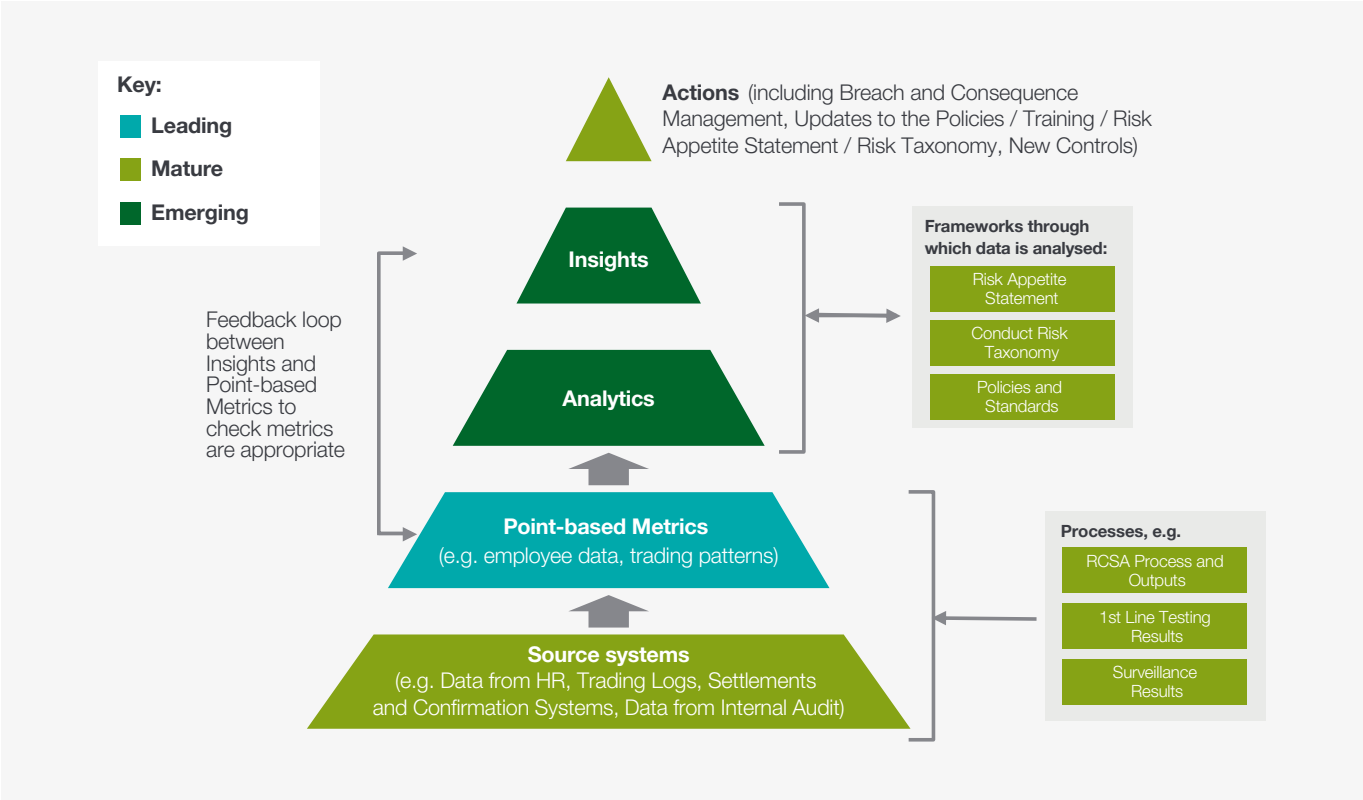
Conduct Analytics Frameworks need to evolve in line with Conduct Risks that are emerging due to changes in the external environment and the ways in which banks undertake business.

Section III. Conduct Analytics Framework

At present, most banks have the core elements of a Conduct Analytics Framework in place, but these elements are often disconnected and siloed in different parts of the bank. All AFME members referred to collecting vast, disparate data sets to visualise point metrics in some form. For this reason, a blueprint for a Conduct Analytics Framework, which is insights-led and data-driven has been set out.

Key considerations to develop Conduct Analytics Frameworks further

The diagram below (layers of the pyramid) outlines the components of a Conduct Analytics Framework. It indicates how these elements fit together and shows a snapshot of the current overall level of maturity of each component across the industry.



This framework is focussed on the derivation and uses of insights; this is the area where banks are continuing on their journey. The starting point for developing a meaningful Conduct Analytics Framework is for banks to ask:

1. What are the insights we are seeking to gain to enable the right actions to be taken?

This insights-led approach will enhance the focus and linkages between all other elements of the pyramid, including the actions to be taken. Monitoring and reporting will be based on the analytics and will generate additional insights. Other insights-led actions will include consequence management, updates to policies, standards and training, addition of emerging Conduct Risks, updates to the Risk Appetite Statement (e.g. a different level of risk acceptance) and development of new controls.

Working backwards from the Insights to the Analytics layer, the next question to ask is:

2. Are our current analytics (e.g. trend analysis) appropriate to derive these insights?

This then informs the following questions for the Point-based Metrics layer:

3. What are the data points / metrics required for these insights?

With the intended insights in mind from the outset, banks can therefore trace backwards towards the finer details and ask:

- *Does the data that underpins these metrics need to be enhanced?*
- *Which disparate data points need to be brought together?*
- *Are any new data points required?*
- *Does the data need to be scrubbed or gathered at a different level of granularity?*

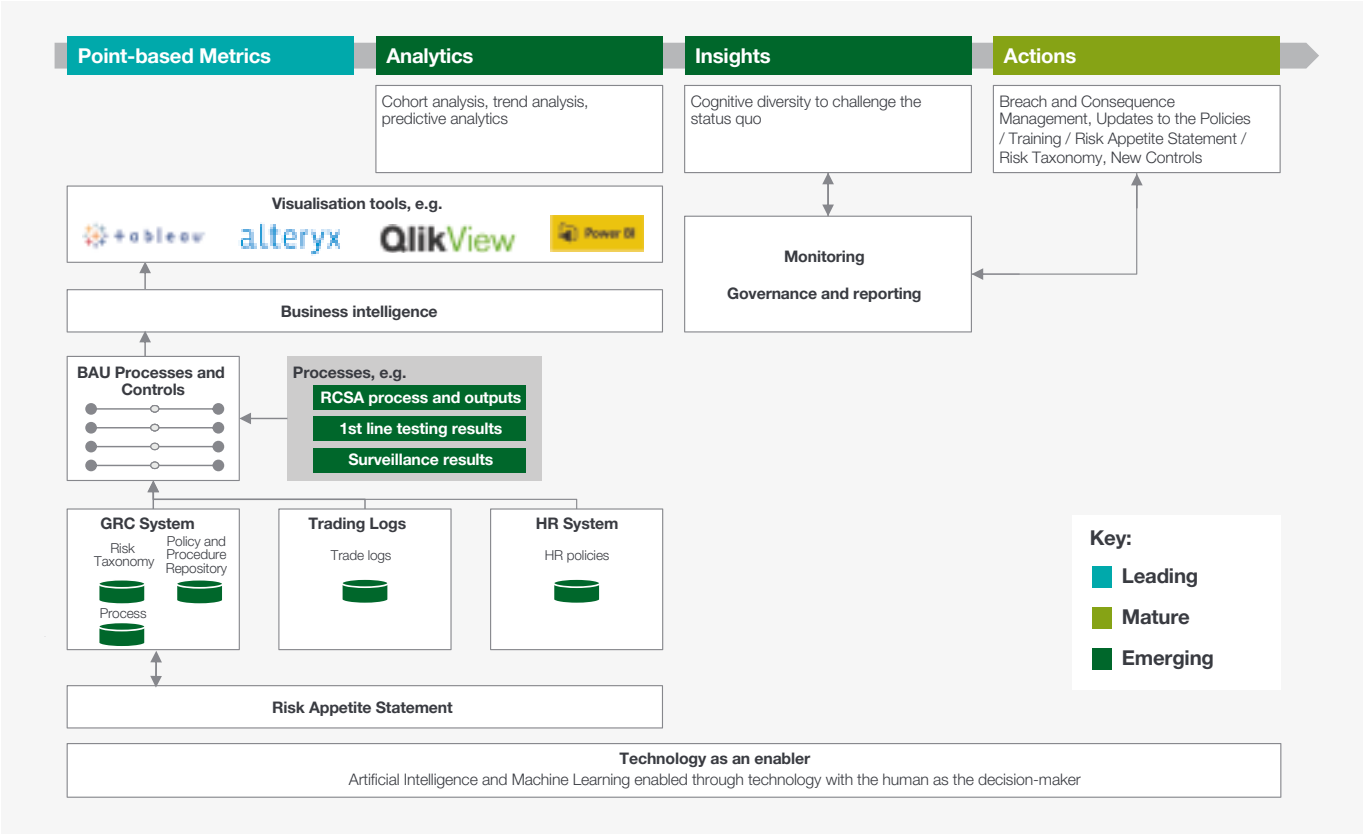
This approach should also enable banks to establish which data is required for analytics and which data is superfluous. For example, significant amounts of data are currently collected by most banks around monitoring and surveillance, yet not all of this data will necessarily be required for the analytics. Many AFME members pointed to challenges in the source systems layer of the pyramid, around relevance of data, data coverage and data quality, which are explored in Section V. Considerations. Returning to the top of the pyramid after considering all of the layers beneath, actions are more meaningful when taken on the basis of insights.

At the Analytics and Point-based Metrics layers of the pyramid, banks should consider whether additional data and metrics need to be layered onto the existing analytics to derive further insights. These points are explored below in 'Using the point metrics to join the dots' and 'Uses of adjacent metrics'. There are also opportunities for some banks to explore new ways to analyse existing data, such as through 'cohort analytics', which involves looking at trends over time and hotspots within specific teams, Business Units, functions or levels within the bank. Analysing within cohorts could also reveal any challenges around culture, such as whether there are issues within a senior leadership cohort, which indicate a poor tone from the top that could have a negative impact on others across the bank.

There is a need for banks to keep re-evaluating the metrics that they gather to inform insights, since the insights may evolve as new risks emerge due to changes in the external environment and the way the bank undertakes business. This is why there is a feedback loop between the Insights and Point-based Metrics layers of the pyramid to check that metrics are appropriate.

Components of the Conduct Analytics Framework

Following a review of the insights that banks are seeking to derive, they can consider the inter-linkages and processes underpinning the top four layers of the Conduct Analytics Framework pyramid. All banks interviewed for this paper currently have components of this framework in place, but some are more advanced than others in considering how these elements fit together and in driving these towards insights and actions.



Underpinning the Point-based Metrics and Analytics layers of the Conduct Analytics Framework, banks have Conduct Risk Taxonomies (encompassing Employee Conduct and Market Conduct) that incorporate a description of how Conduct Risk is measured, managed and mitigated through policies and controls. They have a Risk and Control Self Assessment process to validate the inherent risks identified and their mitigation to an acceptable residual risk level. Banks also have an expression of Conduct Risk Appetite aligned to the bank's overarching Risk Appetite Framework. The data points / metrics from the processes related to these elements are visualised in one place that aggregates and consolidates various data points / metrics. Once insights are gathered and actions are taken, these can influence how messages are positioned in reporting, for example if a root cause has been identified rather than a weak signal, this would be reported. There is then a feedback loop between the insights and the metrics as insights may reveal that different metrics are required or that monitoring and reporting need to be changed.

Ownership and roles and responsibilities

Across the AFME members surveyed, there were very few banks with single ownership of their Conduct Analytics Framework. Within some banks there is a lack of clarity over ownership of certain elements but in most, multiple functions are involved at each layer of the framework with different ownership and handoffs across the elements, creating additional complexity. Functions often work in silos, which is complicated further by the different definitions and taxonomies in place within banks.

32%

of banks have identified **more than one owner** of the **Conduct Analytics Framework**

The Business owns the risks and is in the primary position to mitigate those risks, but is not always sufficiently engaged to support the analytics and insights developed by other functions such as Compliance, Risk, HR and Internal Audit. The Risk and Compliance functions have a key role in monitoring those Conduct Risks and providing advice and challenge. Internal Audit provides input which may inform the Conduct metrics reviewed and the additional layering of metrics. HR also provides input to the Conduct metrics and together with Legal has a role in consequence management. All of these functions are involved in taking actions arising from the insights gained. In the more mature banks, there are structures in place to facilitate the sharing of information These include processes and resources in the Business to ensure robust ownership of conduct and culture, conduct and culture committees with representatives from Compliance and HR and clear escalation routes to hold the Business to account.

For most banks, developing their framework will involve some realignment and reinforcement of roles and responsibilities around conduct so that the Compliance function is able to easily access metrics from across the bank.

In working towards a target Conduct Analytics Framework, a core principle will be breaking down silos between functions and ensuring that the insights are shared along with the data. Insights-led data will also help in engaging the Business more significantly with discussions around Conduct as Compliance cannot take ownership for Conduct Analytics on its own.

Conduct metrics

To show the relationship between metrics, analytics and insights derived, some core Employee and Market Conduct metrics (monitored consistently across the industry) have been outlined in the table below, along with the analytics that could be performed on these and the insights that could be gained.

Employee Conduct - core metrics:

Conduct Metric	Analytics	Insights derived
Periodic mandatory training non-completions	• Number of non-completions and number of days late by individual over a period of time (with false positives removed e.g. non-completion when someone is on maternity leave / long term sick leave / a career break) • Records of intervention by line managers (evidence of chasing, number of additional reminders) • Concentrations across Business Units / Functions / geographies / levels of seniority • Trends over time of individuals / Business Units / Functions / geographies / levels of seniority	On an individual / Business Unit / Function level this could indicate either a lack of understanding of or a disregard for the policy / deadlines and Compliance
Number of whistleblowing incidents (through different channels, e.g. anonymous calls, mailbox)	• Difference between number reported and number upheld • Trend analysis over time • Comparisons across Business Units / Functions / geographies / levels of seniority	High numbers could indicate a culture of feeling comfortable to speak up and/or that there are multiple behaviours that need to be addressed. A concentration of cases within one team could be indicative of line management / leadership behaviours within that team. Conversely, very low numbers could indicate a culture that suppresses reporting or a retaliation culture.
Breaches of gifts and entertainment thresholds	• Breaches by individual and by Business Unit / Function / geography / level of seniority • Trends over time in numbers and materiality of breaches	Potential evidence of Conflicts of Interest that may not have been disclosed and disregard for the rules in this area could be predictive of a lack of transparency, a culture of disclosure or other misconduct e.g. sharing of price-sensitive information.
Periodic written employee appraisals / performance management / 360 feedback	• Reconciliation of rating received with qualitative information • Comparisons across Business Units / Functions / geographies / levels of seniority to identify hotspots • Trend analysis over time by individual	Multiple mismatches or inconsistencies between rating and qualitative information could be indicative of lack of honesty in feedback provision, inconsistent application of the Conduct Framework, a lack of application of a balanced scorecard approach and/or a failure to reward good conduct and deal with misconduct effectively.
Breaches of mandatory block leave (e.g. did not take the required block leave or broke the block leave policy by logging on and the activity conducted while logged on)	• Trends in breaches over time by individual and by Business Unit • Severity of breach and joining the dots with whether any Market Conduct issues were also logged during the block leave period • Cohort analysis across Business Units	Potential joining of the dots with Market Conduct breaches e.g. if a breach of block leave involved any unauthorised trading activity there may be a need for additional focus on specific individuals. Cohort analysis may reveal wider cultural issues within the department / level of seniority.
Breaches through non-declaration of Personal Account Dealing and Outside Business Interests	• Trends in breaches over time by individual • Cohort analysis across Business Units	Potential joining of dots with other data such as websites visited, out of hours trading could be indicative of misconduct intentions and, if reviewed in a timely manner, may support predictive analytics on misconduct.

Market Conduct - core metrics:

Conduct Metric	Analytics	Insights derived
Time-stamping for sequencing of orders (instances where orders have not been executed in the sequence in which they were received e.g. internal orders have been prioritised over external orders)	• Daily comparisons [time] • Hotspots within Business Units / geographies / levels of seniority	Evidence of policy breaches requiring action and remediation prior to client complaints.
Number and sizes of pricing discounts offered to clients outside of specified range (and associated documentation / sign-off by Business Unit and by individual of any pricing discounts provided and rationale)	• Hotspots within particular Business Units / geographies / levels of seniority • Trends over time relating to individual traders	Any instances of favouritism of one client leading to unfavorable outcomes for other clients, which could be identified and remediated prior to customer complaints and lead to further controls being developed.
Instances of price-sensitive information being shared (e.g. inside information)	• Sampling and key words identified through surveillance to highlight instances of market abuse • Periods where breaches are more common • Hotspots within particular Business Units / individuals / geographies / levels of seniority • Cross-referencing with data leakage incidents	Sharing of price-sensitive information could highlight broader misconduct issues among individuals and could be indicative of supervisors not providing sufficient oversight.
Risk/reward/behaviour balance on new products and exceptional deals	• Balanced scorecard usage over time • Outliers compared to average risk/reward balance	Understanding of reward in the context of how profit was generated - the balanced scorecard approach should mean reward is dependent on the amount generated in profit as well as how this is generated (i.e. the conduct/behaviours displayed).

Using the point metrics to join the dots

Some examples of ways to join the dots include:

- Examining the Employee Conduct metric relating to breaches of the gifts and entertainment policy alongside the Market Conduct metric of sharing of price-sensitive information to identify any correlations or predict issues in related Market Conduct areas.

- Connecting the Market Conduct metric relating to the risk-reward on new products and exceptional deals with the Employee Conduct metric of periodic performance management to assess whether grades and remuneration are being awarded with consideration of the balanced scorecard approach; i.e. whether there are instances of failing to reward good conduct or to deal with misconduct effectively through reward (e.g. reducing bonuses and removing pay rises to deal with misconduct).

Whilst most banks consider these metrics, there is an opportunity to join the dots, develop a more holistic perspective and take action more systematically. There is also an opportunity to overlay adjacent metrics, such as Environmental, Social and Governance metrics and diversity and inclusion metrics, as explored in Section IV. Opportunities below.

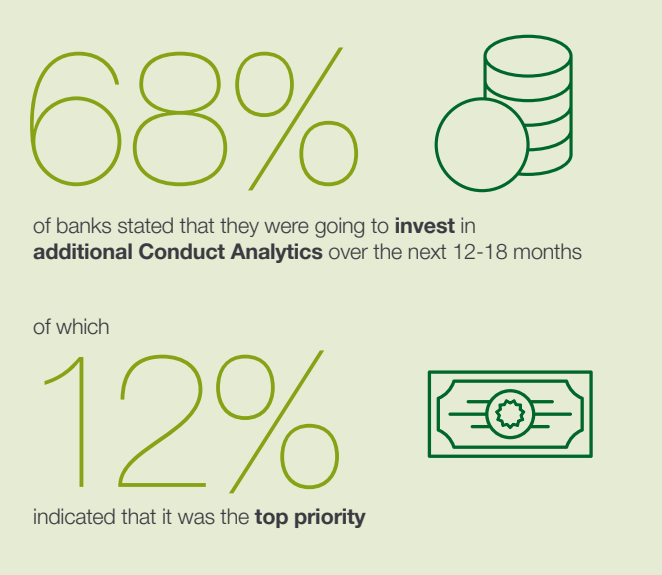
Identifying specific insights through Conduct Analytics around one type of metric can empower teams to anticipate and reduce other Conduct Risks in related metrics. For example, incorrect sequencing of orders can be predictive of client complaints, so identifying any instances of incorrect sequencing of orders provides an opportunity to remediate them prior to complaints being made.

Benefits of the insights-led, data-driven Conduct Analytics Framework

There are three key benefits:

1. **Systematic consideration of all elements of the Conduct Analytics Framework** will result in more focussed and meaningful insights. Beginning with the insights desired and working backwards to establish the data and analytics required to drive towards these insights can focus the analytics more effectively and inform more meaningful actions.

2. **Identifying and resolving root causes**: Regulators have found that most banks are able to fix individual issues effectively, but are not always able to identify and resolve the root causes to prevent such issues recurring. The insights-led approach outlined above will improve the ability to resolve root causes as it ensures that data is purposeful in revealing the insights, whilst providing a holistic view of the wider context of the bank. These more focussed insights can then inform monitoring programmes and strengthen oversight of Conduct Risk.



3. **Focused investment:** This insights-led and data-led approach will allow banks to prioritise investment in a more targeted manner. This is because there will be a more focussed set of metrics, meaning that a smaller subset of metrics can be examined in a more robust manner. This subset can be reviewed on a periodic basis to ensure it remains relevant.

Section IV. Opportunities

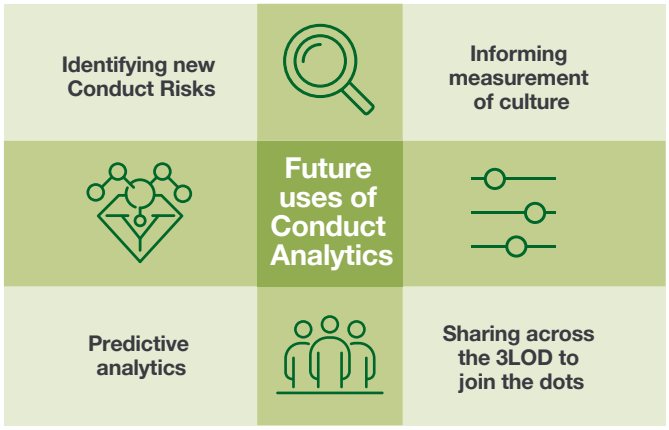
Given the continued evolution of Conduct Analytics Frameworks across a wide range of banks, there is an opportunity to set these up for success from the outset and maximise their potential benefits.

Creating focussed insights-led metrics

By starting with the key desired insights, banks will be able to narrow down the metrics, analytics and data needed to derive these insights. In turn, this should improve the efficiencies of management, regulatory and client reporting. Since a smaller subset of metrics can be used and focused on, time that had previously been spent on collating metrics and performing manual interventions can instead be redeployed onto value-add strategic thinking, such as identifying new Conduct Risks and informing measurement of culture based on the prioritised data sets. This is something which almost all AFME members have indicated they would like to do in future and it will also facilitate making use of adjacent metrics for Conduct Analytics.

Uses of adjacent metrics

Whilst Banks have a number of point metrics, they have the opportunity to build out layers of metrics and analytics as well as to enrich the insights derived from these by making use of adjacent metrics (i.e. ones they are already developing / using for other purposes). These relate to Environmental, Social and Governance, culture and diversity and inclusion. This will enable further connecting of the dots with metrics that are readily available to facilitate the planned future uses of Conduct Analytics cited by AFME members: identifying new Conduct Risks, informing measurement of culture, predictive analytics and sharing across the Three Lines of Defence.



For example, whistleblowing incidents are logged as Conduct metrics, which can then be overlaid with Environmental, Social and Governance metrics around transparency, accountability, independence and ethical behaviour. Adjacent metrics for this would include:

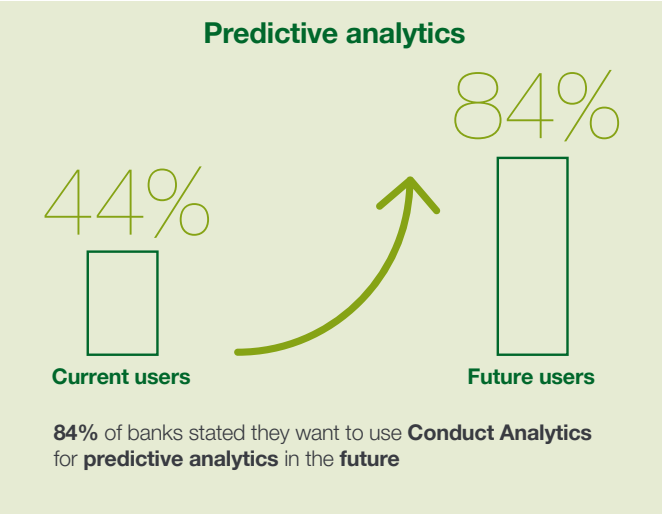
- Time taken for escalation of whistleblowing to the relevant committees and the regulator (where relevant)
- Transparency around actions and time taken to resolve whistleblowing incidents, ensuring accountability of those involved at each stage in the process
- Whether independent oversight has been provided by the appropriate Boards and committees
- Cross-checking against the whistleblowing policy to ensure that incidents have been dealt with in an ethical manner (e.g. ensuring the anonymity of the whistleblower and avoiding bribery and corruption).

Insights derived via layering of these adjacent metrics would thereby reveal further details around the handling of the whistleblowing, in addition to the whistleblowing itself.

Use of predictive analytics, facilitated by Artificial Intelligence

Use of adjacent metrics can also inform predictive analytics. There is considerable interest from AFME members in using the power of predictive analytics, with 44% of survey respondents using predictive analytics to some degree and a total of 84% aiming to in future.

Predictive analytics can be key to anticipating and mitigating any conduct issues before they arise. For example, if a review of breaches to the gifts and entertainment threshold highlights a conflict of interest between an employee and a client that has not previously been disclosed or monitored and there is a significant disregard for these policies by certain individuals, this may be indicative of the individuals displaying misconduct in other areas, such as sharing of price-sensitive information. This could trigger a requirement for localised increases in training, monitoring and surveillance as measures to mitigate these increased risks. Predictive analytics need to be driven by the data that is required, not only the data that is currently available. There are, however, challenges around bias and subjectivity when dealing with predictive analytics, which are explored further in Section V. Considerations below.



Predictive analytics will be more effective by bringing together different metrics and using (mathematical / rules based) models to expedite the analytics. This could be achieved by building on the framework-driven approach set out in this paper to incorporate a model-driven approach. In many cases, Artificial Intelligence (AI) is relied upon for decision making and human intervention takes place if, for example, the client complains about the decision. The human should always be able to override the decision made by technology and whilst the human should always be the final decision-maker, adopting new forms of technology will facilitate the processes around use of predictive analytics. AFME members interviewed expressed an interest in leveraging AI and Machine Learning to increase the potential of predictive analytics. Whilst this could save time currently spent on manual data analysis and improve the ability to draw comparisons across large and disparate data sets, there will always be a need for human interpretations that consider the broader context such as trends in the market, including market volatility, objectives of the bank, regulatory considerations and the impact on clients both in terms of market integrity and personal conduct.

Use of Artificial Intelligence and Machine Learning

Some AFME members are already using AI and Machine Learning to facilitate their monitoring and surveillance, such as pattern recognition and key word identification, in particular around misconduct. Regulators have indicated that a small number of banks have also been using AI to identify good behaviours, such as collaborative teaming, constructive challenge and speaking up.

Before investing in AI and Machine Learning, it is critical for banks to understand the insights they are seeking as part of the Conduct Analytics Framework to harness the power of these tools. They will add unproductive complexity to the processes if there is no clear view of the objectives for them to deliver. Additionally, there are ethical considerations around utilising such tools, which are explored further in Section V. Considerations below (Reducing subjectivity in analysis and Data ethics). Use of data scientists could be additive to the use of predictive analytics, for example in developing a data visualisation tool that can be tailored to different functions and join together disparate data sets in different ways, but only if the purposes of the predictive analytics have already been determined. Some banks are in the early stages of using behavioural economists to predict behaviours.

Quick wins

There are some quick wins available:

- **Use of adjacent data:** Use of adjacent data will be achievable in the near future for most banks, once they have considered the insights they are seeking and have identified which data sets will be relevant for those insights.
- **Further sharing of information across the Three Lines of Defence:** In the survey of AFME members, 60% of banks stated that they currently share Conduct Analytics across the Three Lines of Defence and a further 20% said they would like to improve this sharing in future, with the remaining 20% not highlighting this as an area for development.
- **Joining the dots between data sets:** Sharing of information will also help banks in joining the dots between data sets, once challenges of data privacy, data quality and differing levels of data granularity can be overcome.

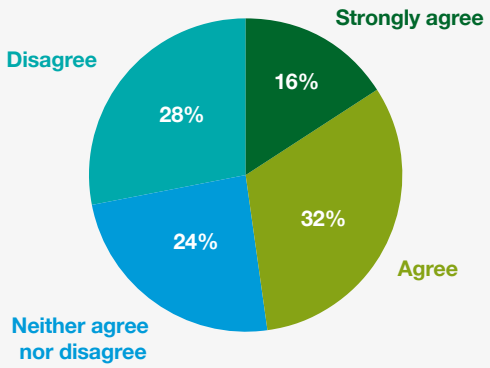
With these quick wins implemented, most banks will already find that the actions taken based on insights, such as consequence management, can become more efficient by being more insights-led and outcome-focussed.

Section V. Considerations

This section details the key considerations that AFME members have identified in continuing to build out their Conduct Analytics. In the survey, 52% of AFME members disagreed or were neutral as to whether their current Conduct Analytics Framework is sufficiently advanced to inform decision making. As banks evolve on their journey, there is more work required to make their Conduct Analytics Frameworks more robust, providing further insights to guide them in their decision making.

AFME members also cited in the survey that challenges around sourcing data, data quality and legacy technology systems are significant barriers to advancing their decision making around conduct; a number of additional challenges and opportunities were raised in the interviews with AFME members.

52% of respondents **disagreed or were neutral** as to whether their Conduct Analytics Framework is **sufficiently advanced** to guide them in **making decisions**



Types of recommendation:

As members seek to develop their Conduct Analytics, we have classified key considerations to inform how analytics can be further developed as follows:

- **A:** Banks to consider how to address, taking account of their individual size, scope and strategic objectives.
- **B:** Banks working together to brainstorm and share good practice ideas at an industry or framework level, with further research needed.
- **C:** Banks lobbying collectively to propose a way forward.

The key considerations and suggested ways to address these are summarised in this table and explored in detail below. The primary means are indicated by the larger tick, while a smaller tick references secondary means.

#	Consideration	A. Addressed individually	B. Addressed by working together	C. Addressed by lobbying collectively
1.	Insights-led and data-driven approach	✓	✓	
2.	Reducing subjectivity in analytics	✓	✓	
3.	Relevance of data	✓		
4.	Coverage of data sets	✓	✓	
5.	Data quality	✓	✓	
6.	Data privacy		✓	✓
7.	Data ethics		✓	
8.	Technology	✓	✓	
9.	Skills required in the Compliance function	✓		
10.	Engagement with the Business	✓		
11.	Remote and hybrid working		✓	✓

Clearly, there is rarely a 'one size fits all approach' and therefore a need for banks to consider their individual circumstances. Nevertheless, in many cases, there is scope for them to collaborate and share good practice at an industry level.

1. Insights-led and data-driven approach

The first consideration is identifying the insights that they wish to derive from the data and metrics analysed, following the insights-led and data-driven Conduct Analytics Framework blueprint. This will include firstly ensuring that the framework has clear ownership and delineation of roles and responsibilities between the Business, Compliance and other support functions; and secondly ensuring that the Framework evolves over time to accommodate emerging Conduct Risks so it is relevant and sustainable on a Business As Usual basis.

Recommendation A: This approach will vary slightly for each bank depending on where they are on their journey with the framework and the priorities of the bank so some of this work needs to be on an individual basis.

2. Reducing subjectivity in analytics

The analytics that are performed and the way in which they are presented can significantly influence the insights that are derived. This includes scenarios that are used, as well as the ways in which data is contextualised and tailored by and for different functions / Business Units / jurisdictions, where different terminologies and taxonomies may be in use. Achieving objectivity and standardisation in the presentation of analytics across these areas is a challenge, particularly for large, complex organisations with global reach.

To reduce the subjectivity of judgements, banks should consider the context of the data and key factors such as calibration, thresholds, how extrapolations are made and the mapping of indicators to insights before driving towards conclusions. Key considerations around reducing subjectivity in analysis are:

a. **Interpretation of data:** Individuals can interpret the same data differently owing to cognitive diversity which can lead to diverse insights and conclusions. For example, as explored in the Bank of England's Staff Working Paper 'Organisational culture and bank risk' (March 2021), a high number of whistleblowing cases can imply a lack of integrity within a firm, with many behaviours needing to be addressed in the wider culture. However, AFME members have also highlighted that this could conversely indicate that staff feel comfortable in speaking up and confident that their rights as whistleblowers (such as the right to anonymity) will be protected. Similarly, a high number of client complaints could indicate that there are multiple instances of employee misconduct and that clients have not been treated fairly, whilst a small number of client complaints could be indicative of an ineffective framework for logging and managing complaints. There could also be a variation in the definition of complaints across different businesses in global banks and the degrees of severity assigned to these, with some teams recording every such incident as a complaint and other teams only logging the more severe examples, meaning that the total number of complaints could have been reached subjectively.

b. **Manual intervention around models:** When analysing behavioural signals it is not possible to remove subjectivity entirely, but processes and models can be designed to try to minimise this risk. As it is not feasible for monitoring and surveillance teams to oversee every single event, a system(s) can build the funnel and filter to highlight any potential misconduct / poor conduct issues. Manual intervention is then deployed at the point that the system identifies a potential issue. For example, a system can identify that an employee logs on and off at unusual times, but human intervention is then required to understand whether there are legitimate reasons, such as the employee being a parent and needing to work flexibly around other commitments. The process therefore needs this additional step to mitigate the risk of bias.

c. **Data coverage:** Data coverage is also important for reducing bias in data models. This is because any sampling of data can lead to unintentional bias based on the information that is selected. When 100% of data is checked by a machine, 'good' data as well as 'bad' data can be reviewed and the tool can evolve to understand the overall data sets, rather than focussing on 'bad' data points, which could skew the overall view.

d. **Predictive analytics:** When applying such analytics to behavioural metrics, there can be conscious or unconscious bias in implementing preventative controls on specific individuals based on an increased likelihood of a misconduct event occurring. For example, if it is predicted that an individual may be more likely to engage in conduct breaches, a preventative control may involve giving this individual additional mandatory training. However, this could be considered discriminatory as this individual may not in reality go on to engage in misconduct. There is a limit to how much can be foreseen accurately. Predictive analytics could be used to identify increased risks of misconduct occurring, but there are many other environmental factors that could skew these predictions. Nonetheless, these analytics can be used to triage incidents and rank likelihoods as higher or lower risks. This can then facilitate the human checks and requirements for preemptive steps to be taken, such as further investigation in a specific area.

Recommendation A: The insights-led approach of the Conduct Analytics Framework should help guide banks on an individual level and ensure that the human is the decision-maker in the process. Whilst bias and subjectivity cannot be fully removed from analytics, further discussions can be held between banks to share specific expertise at an industry level.

3. Relevance of data

Most AFME members have indicated that they have a range of challenges with their data. In most large, complex banks there is a proliferation of data that is monitored, which can make it difficult to filter out what is required for their analytics versus what is peripheral. There is often a duplication in data analysis between the First and Second Line of Defence owing to short-term efforts to meet regulatory requirements in their siloed areas, rather than a holistic approach across the bank. This lack of a holistic approach integrated across the bank is symptomatic of a lack of a golden source of data, with different functions often using slightly different data sets at differing levels of granularity. This is further complicated by the use of legacy systems and can lead to divergent insights being derived. Some banks also referenced that whilst their businesses are global, they require legal entity level data to satisfy local jurisdictional nuances, and this legal entity level data is not always available.

Recommendation A: Whilst there is no single answer, the insights-led approach tailored by each bank to its needs will streamline the required data to some extent, since the more relevant data can be identified and isolated.

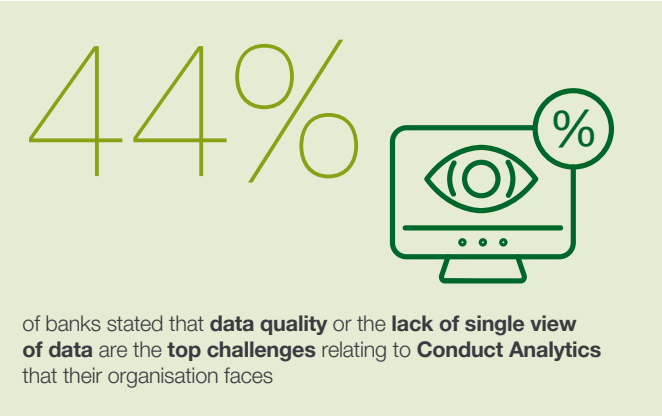
4. Coverage of data sets

Regulators expect firms to be thoughtful about the data they are collecting and to contextualise this data as part of the wider environment to prevent any misinformed or impromptu reactions. Some data sets may present weak signals, but when these are combined with others and the coverage is widened, these signals may become significant and be indicative of root causes. Additionally, when some data sets are generated on a sampling basis, there is a risk of missing some key data points and it can be more challenging to derive holistic insights. Instead of sampling, AI tools can be used for 100% coverage of data, whereby the tool will triage the data and filter it for human review. There is an observability bias which applies to humans and machines alike, as decisions are made based on the information presented, and by leaving out key information (or not looking at metrics holistically) the model or the human can reach inaccurate conclusions. Once there is a focused set of metrics, the scope of these metrics can be expanded for example, to capture non-regulated staff as well as regulated staff to reveal wider insights on the bank, including behavioural drivers.

Recommendation A: After establishing the relevance of data gathered, banks need to consider how they layer data sets during their analysis and understand whether combining data in different ways could generate new insights. Additionally, banks need to review their sampling methodologies to ensure sufficient coverage of their data sets and, where possible, consider use of AI tools to achieve 100% coverage of data.

5. Data quality

Data quality, accuracy and integrity have been highlighted as key challenges. There is currently a need for manual scrubbing of the data or manual intervention to remove false positives and adjust the levels of granularity across data sets. It is also not always straightforward to compare 'like with like' where there are instances of different terminology being used for equivalent items in data sets. Where source data may be in a sub-optimal condition or include any distortions or false positives, there is a greater requirement for manual intervention and interpretation, which can cause additional inconsistencies and the potential for manual error.



Recommendation A: Addressing issues around data quality will need to be on a bank by bank basis, requiring them to look at their data policies and data strategy across the whole organisation as part of the development of their Conduct Analytics Frameworks.

6. Data privacy

Whilst regulators require banks to be data-driven, there are restrictions over the amount and types of data that can be accessed owing to broader data privacy regulations. There are two types of data: (i) Personal data, the use of which is regulated by GDPR; and (ii) Non-personal data, to which GDPR would not apply, but where there can be other restrictions such as on data transfer.

Banks need to consider who should be able to view which data sets, which is further complicated by variations in restrictions across different jurisdictions. This can be a barrier to consolidating and aggregating all the data that banks would like to use to derive insights. Security of this data is an additional concern for many banks. Sharing data sets with external vendors when exploring technology solutions can also pose data privacy issues, in particular around non-public information such as pricing thresholds.

Recommendation C: Banks need to reach a common understanding and aligned approach to dealing with data privacy issues. There may be an opportunity for them to lobby regulators and shape developments, in particular in balancing requirements in Financial Services with requirements from data regulators such as the European Data Protection Board and the Information Commissioner's Office. This may involve focussing further on overall culture rather than individual misconduct, which would not require an increase in monitoring and surveillance currently underway.

7. Data ethics

Beyond this, there are ethical considerations and a need to think sensitively around the appropriateness of data that is being utilised. For example, if certain metrics are being used to foresee potential future behaviours (such as employee misconduct or Market Conduct breaches), there is a risk that these predictions then disadvantage an employee who does not (despite the predictions) display this misconduct or cause this breach. Similarly, the ethics of using AI and Machine Learning can come into question as certain assumptions will have been built into tools (and therefore there is a reliance on the coder/ inventor of the rules having the same level of accepted standards as the users). There is also a risk of bias when diversity and inclusion metrics are assimilated into the tools.

Recommendation B: Data ethics is a complex topic that will require further discussions, brainstorming and research across the industry. Banks have the opportunity to work together to leverage specific expertise to set the standards and gain consistency.

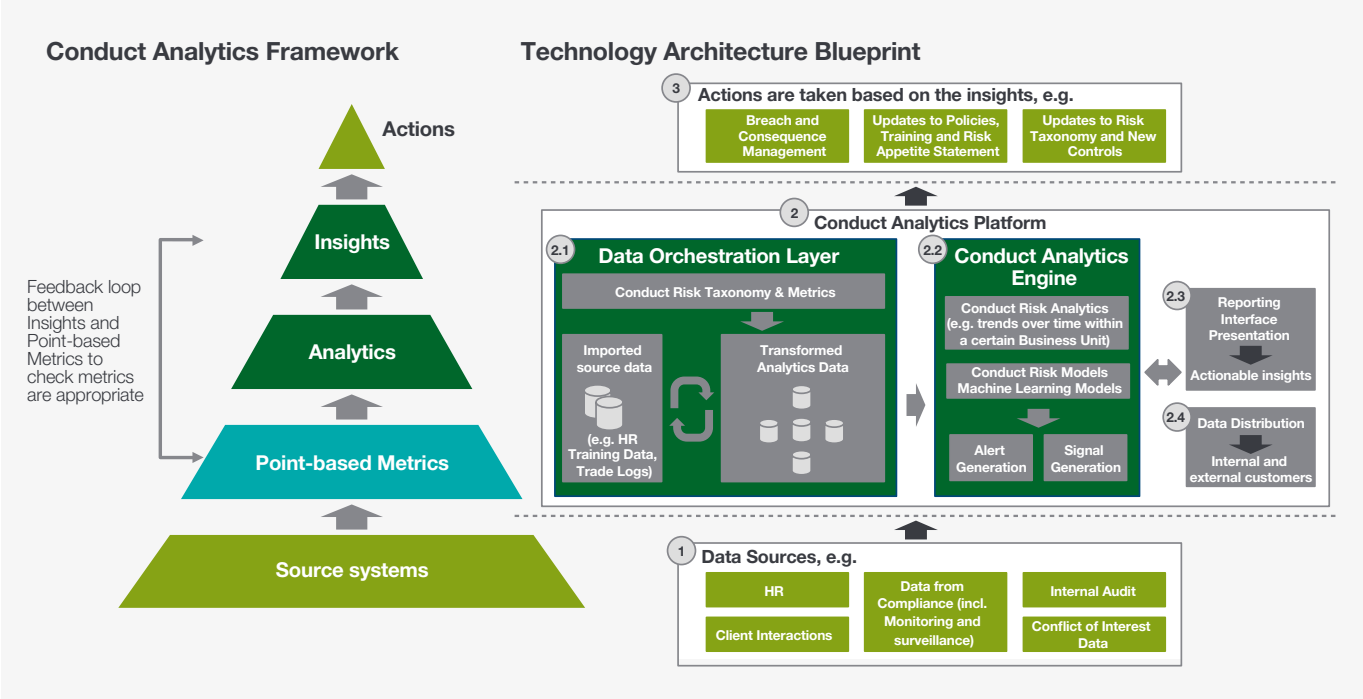
8. Technology

Many AFME members pointed to technology as a key area for investment. Most banks struggle with legacy systems that have been enhanced in silos, for example to respond to regulatory changes in piecemeal fashion, which thereby makes it difficult for them to gather the data they require for Conduct metrics. The tools they use to manipulate data (e.g. Excel) or visualise data (e.g. Tableau) are basic. Some degree of automation could facilitate the production of metric visualisations. However, without a clear vision for the insights and analytics that are required, it is not possible to document requirements for a new tool, or to programme these requirements into an existing tool.

Nevertheless, some banks are using advanced analytics technologies, such as layering of adjacent metrics and linking of more data sources for improved alert generation. Many are reviewing their reporting tools to provide more timely alert generation on conduct issues. Additionally, multiple banks are focusing on how to improve data quality (a key consideration highlighted by AFME Members). This includes provision of a single view of the data in one place that is maintained as a golden source and consistency in the level of granularity of data.

Technology architecture blueprint

Almost every bank has bespoke types of technology to extract and process data, underpinning the presentation of data. Nonetheless, there are commonalities that can be leveraged. The Technology Architecture Blueprint focuses on the components of the technology architecture rather than systems as the latter will vary across banks. The diagram shows how it fits in with the Conduct Analytics blueprint.



A description of each component of the technology architecture is provided in the table below:

Framework element	Detail
1. Data Sources	Data is sourced from various systems, held in datastores owned by different Functions. For example, source data from HR could include whistleblowing, employee appraisals and mandatory compliance training non-completions. These remain on HR systems, but a feed of these data points is extracted and imported onto the Conduct Analytics Platform (level 2).
2. Conduct Analytics Platform	**2.1. Data Orchestration Layer** The Data Orchestration Layer is able to bring together siloed data in one place to provide a comprehensive view of all data that is required for Conduct Analytics. This Layer is responsible for importing source data from different origins to become transformed analytics data. For example, data from HR relating to an individual's non-completion of mandatory compliance training could be brought together with Personal Account Dealing actions overdue by the same individual. This process uses the Conduct Risk Taxonomy and Conduct Metrics defined to label and categorise the data. The data can be structured according to various groupings as required. Transformed analytics data is created using imported data from diverse sources, which enables joining the dots for Conduct Analytics. For instance, data sets could be transformed to create the profile of an individual by joining the dots from imported data sources from HR and Compliance covering the employee's training and other activity, then referenced to the Conduct Risk Taxonomy, resulting in a set of metrics which is ready to be analysed in the Conduct Analytics Engine (2.2) to generate insights.
	2.2. Conduct Analytics Engine Analytics are performed on the transformed analytics data, which can include trend analysis over time and analysis by group. For example, analysis could be performed on Personal Account Dealing violations by a certain group over the period of 3 months. This can generate alerts, which can then trigger approval requests, exception requests and breach and consequence management. The Conduct Analytics Engine is one area where Machine Learning can be used to facilitate the analytics and generate alerts and signals (see detailed text below).
	2.3. Reporting Interface Presentation The Reporting Interface Presentation is how analytics are presented (e.g. Tableau, graphs showing trends) and leads to actionable insights. A feedback loop between the metrics and insights is required to enable appropriate reporting.
	2.4. Data Distribution The data distribution layer is capable of distributing Management Information trends and insights to internal groups (e.g. the Board and committees) and regular external reporting to clients and regulators to meet the broader obligations around regulator reporting and audit.
3. Actions	Actions are taken based on the insights. This can include Breach and Consequence Management, updates to the Policies / Training / Risk Appetite Statement / Risk Taxonomy and developing new controls.

Use of Machine Learning

Machine Learning can be valuable in the Conduct Analytics Engine part of the technology architecture. Its usage depends on the types of data required. Many of the Conduct metrics currently used are structured data sets, such as periodic mandatory training non-completions or time-stamping for sequencing of orders. With structured data sets, Machine Learning is not required as advanced analytics are already used in most banks.

With unstructured data sets, such as whistleblowing calls, the data can be processed via Natural Language Processing (NLP). Similarly, if structured data sets are being combined with unstructured data sets, such as time-stamping for sequencing of orders (structured) being combined with the activity of an individual outside of hours, websites visited, WhatsApp messages and social media usage (unstructured), then Machine Learning will be useful.

Machine Learning can be supervised or unsupervised. Supervised learning involves use of a labelled data set that is well-understood, as the data set has already been defined. Certain items can be run on such sets, for example if in the last 10 years certain actions have been taken, a forecast can be created based on whether these are expected in the next 10 years. Unsupervised learning takes place when the data set is random, for example if calls are monitored where discussions might involve sharing of market-sensitive information but could equally be discussions of weekend plans. With unsupervised learning, the output is not in a binary form (unlike in the supervised learning example where something is predicted to happen / not happen within a specific time period, such as the next 10 years); this is because the data set is not labelled and is based on a vast set of data, such as voice calls. By applying unsupervised Machine Learning techniques, a cluster of patterns for Conduct metrics can be derived. The majority of Conduct metrics will involve supervised learning as the areas being explored are known, whereas unsupervised learning will be used if exploring a cluster of individuals, such as to check for conversations around appropriate conduct.

Machine Learning can be used to identify an issue before it arises. Many banks are currently focussed on advanced analytics but there is potential to use Machine Learning further to look at an employee more holistically. The Machine Learning models will generate signals which can be investigated further and enable a refinement of the metrics that can be layered on top of existing metrics, leading to actionable insights.

Recommendation A: Banks will have elements of the blueprint outlined above. Each bank will need to consider the objectives of their own technology architecture and determine which technology solution(s) fit their specific requirements. When looking to enhance the Data Orchestration Layer (2.1), many banks have multiple in-flight data initiatives underway which can be built on, rather than starting from scratch.

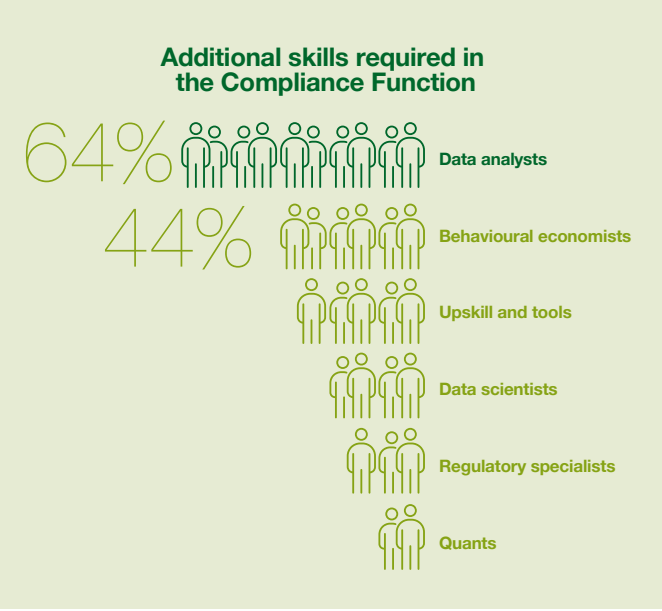
Several banks already use advanced analytics for structured data sets. To gain broader predictive analysis of employee behaviours, they first need to ensure policies and procedures are defined around any additional metrics, the risk models they intend to develop and uses of outputs. Following this, they can begin their journey in using Machine Learning and explore activity-based Conduct Risk (e.g. social media interaction), then employ Conduct Risk Models which use Machine Learning. In parallel, banks can assess whether the overall culture is setting the tone for the right individual behaviours.

9. Skills required in the Compliance function

64% of banks surveyed responded that they are planning to hire new data analysts and 44% are planning to hire behavioural economists.

Whilst these new hires may be able to find efficiencies in developing analytics and in understanding some elements of Employee Conduct and Market Conduct, they will only be able to add significant value if there is a clear direction for the Bank's Conduct Analytics, with a definition of the insights that the bank is seeking (as outlined in Section III. Conduct Analytics Framework). Nevertheless, new hires could help develop the framework.

Recommendation A: Banks will need to decide on an individual basis where they require additional skills based on the current skill sets within their Compliance functions, using the insights-led approach in this paper.



10. Engagement with the Business

Compliance functions are taking the lead with the development of Conduct Analytics, although often without clear overall ownership of the Conduct Analytics Framework (as explored in Section III. Conduct Analytics Framework). Many banks point to a need for further ownership from the Business. Bringing together the relevant stakeholders in the Conduct Analytics Framework will enable a clearer definition of roles and responsibilities, a reduction in duplication across teams, and more engagement and understanding from the Business around Conduct Analytics.

Recommendation A: The Conduct Analytics Framework demonstrates the clear role of the Business in owning Conduct Risk and being accountable for managing and mitigating it. By using the framework to produce clearer insights, select the relevant data sets for analysis and define clearer interactions between teams, the Business is likely to be engaged more successfully. The precise engagement with the Business will be different in each organisation so banks will need to work independently and build relationships internally.

11. Remote and hybrid working

The move to remote working in March 2020 has added a new dimension of complexity around conduct across the industry. This is due to new controls that needed to be implemented rapidly and challenges around monitoring and surveillance in a remote environment that cannot be fully mitigated by new controls. Many AFME members interviewed expressed concerns over what cannot be physically monitored remotely such as cohabiting individuals / neighbours who work for competing firms overhearing sensitive information.

Similarly, some banks highlighted that they are unable to monitor messages over external platforms such as WhatsApp on personal devices, which would otherwise be disallowed in an office environment under physical supervision. Others observed a sharp decrease in messages via their internal monitored platforms since the move to remote working in March 2020, which may indicate an increase in personal, unmonitored communications. As well as being unable to monitor personal communication platforms, some jurisdictions have labour laws restricting the level of surveillance that can be conducted on internal platforms, adding another barrier to remote monitoring and surveillance.

There have also been challenges raised around the additional cultures that can develop remotely such as a reduced feeling of connectivity between staff leading to certain issues not being flagged or a hesitation to contact supervisors or the Compliance function for questions around trades. This all adds to the existing complexity of multiple cultures in global banks.

Recommendation C: Banks need to ensure they have a clear approach that demonstrates a robust monitoring capability in a remote environment. Banks have the opportunity to work together to find ways of tackling this and to lobby regulators for further clarity around the expected levels of monitoring and surveillance in a remote environment, in particular where these expectations may not align to labour laws and privacy laws. This may require an increased focus on culture without necessarily increasing the focus on monitoring and surveillance of individuals.

Section VI. Next steps and Continuing the conversation

Next steps

As pressure increases on Compliance functions to be more efficient and more strategic, Conduct Analytics is a fundamental pillar of the paradigm shift to insights-led, data-driven Compliance Risk Management. Whilst there is no silver bullet to progress the Conduct Analytics frameworks to a more mature state as Compliance functions continue on their journey towards more sophisticated analytics, the insights-led approach will allow banks to make best use of the existing components of these frameworks.

Specific areas of focus for banks are:

- **Use of the insights-led approach:** This will help banks identify patterns and trends in Conduct Analytics that can ultimately support them in identifying root causes. Behavioural economists and data scientists are being employed by some banks. Individuals with these skillsets can help once the goals of the insights are clear. Banks also need to consider emerging Conduct Risks for the Conduct Analytics Framework to be sustainable and to allow banks to be forward-thinking.

- **Integrating the use of unstructured data:** Many banks are already using advanced analytics technologies for the core Conduct metrics set out in this paper. To be predictive to a greater extent, they can build more holistic views of individuals using unstructured data (e.g. voice calls on applications, websites visited) facilitated by Machine Learning. These can give insights to support banks in preventing misconduct rather than detecting it.

- **Culture:** Banks can re-invigorate the measurement of culture to set the tone for the right individual behaviours. As data privacy laws become more stringent, it will become more challenging to monitor individual behaviour and the focus on having the right culture may help with reducing the need for significant monitoring of individuals in the medium to long term.

- **Collaboration:** While most of the recommendations require implementation in light of a bank's individual context, there is scope for the banks to work together to share insights at an industry level.

Continuing the conversation

Developing the topic of Conduct Analytics further is an important consideration for the industry, where clients, Boards, regulators and wider society are increasingly holding banks to high standards. Conduct Analytics will be essential for building trust and transparency in the industry and for enabling the efficient working of Capital Markets in Europe.

Glossary

Term	Definition
Adjacent metrics	Metrics that are already being used by the Bank (not necessarily for conduct), but could supplement Conduct metrics e.g. Environmental, Social and Governance metrics.
Artificial Intelligence (AI)	Leveraging computers and machines to mimic the problem-solving and decision-making capabilities of the human mind.
Conduct Risk	The risk that actions by the organisation or an individual lead to client detriment or have an adverse impact on the stability or integrity of financial markets or on effective competition (based on FCA guidance).
Conduct Analytics	The insights that can be derived from the analysis of data sets, metrics, Key Risk Indicators or other information gathered on conduct and are used in managing Conduct Risk, rather than simply the metrics themselves.
Corporate culture	Encompasses risk culture (see below) and relates to the overarching culture of the bank. It is unique to each bank.
Environmental, Social and Governance (ESG)	Investors are applying these non-financial factors as part of their analysis process to identify material risks and growth opportunities. ESG metrics are not usually a part of mandatory financial reporting, though banks are increasingly making disclosures in their annual report or in a standalone sustainability report.
Groupthink	The practice of thinking or making decisions as a group, resulting typically in unchallenged, potentially poor quality decision-making.
Machine Learning (ML)	A branch of AI. It is the use and development of computer systems that are able to learn and adapt without following explicit instructions, by using algorithms and statistical models to analyse and draw inferences from patterns in data.
Natural Language Processing (NLP)	The automatic manipulation of natural language, like speech and text, by software.
Predictive analytics	Use of analytics to be more forward thinking and prevent, in the context of this paper, misconduct.
Risk culture	A part of the corporate culture; it relates to risk taking by the Business and is linked to the Risk Appetite Statement.
Structured data	Highly specific data which is stored in a predefined format.
Unstructured data	A conglomeration of many varied types of data that are stored in their native formats.

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/ About AFME

The Association for Financial Markets in Europe (AFME) is the voice of all Europe's wholesale financial markets, providing expertise across a broad range of regulatory and capital markets issues.

We represent the leading global and European banks and other significant capital market players.

We advocate for deep and integrated European capital markets which serve the needs of companies and investors, supporting economic growth and benefiting society.

We aim to act as a bridge between market participants and policy makers across Europe, drawing on our strong and long-standing relationships, our technical knowledge and fact-based work.

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on a wide range of market, business and prudential issues

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