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Industry Utilities: A Perspective for Capital Markets

The challenges and opportunities for the adoption of utilities in the industry

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Foreword

AFME is pleased to publish *Industry Utilities: A Perspective for Capital Markets*. This report comes at a time of considerable change for the industry as it looks towards its post-crisis future, operates within new regulatory frameworks and seeks to embrace a rapidly changing technological landscape.

The opportunities for utilities continue to attract focus across the capital markets industry. The concept is certainly not new, with many services existing across areas such as clearing, settlement, messaging and verification. However, what is now driving this renewed interest is a need to focus on costs and efficiency.

Industry utilities offer up the promise of reducing costs and removing duplication across common services, providing these in a standard, efficient and mutually beneficial way for their participants. However, utilities are complex by nature and there are many challenges and barriers which can prevent utilities coming to market, delivering the expected savings and benefiting the industry in the long term.

In producing this report, AFME, working with its members, has set out to understand the core characteristics of utilities and the principles that should be followed for best practice, and to identify the potential opportunities for the industry.

To achieve the benefits of utilities, both now and in the future, it is important that the whole industry works towards solutions that are interoperable, standardised, global and open to all. Success will depend on the ability of financial institutions to work collectively to realise long term benefits, whilst policymakers and authorities have a key role to play in driving forward common, harmonised, global standards.

We hope that this report can be a useful step in supporting the collaboration that is needed on this important topic, which extends to all market participants – be they banks, investors, market infrastructures, policymakers, regulators, or third-party providers.

I wish to thank the collective effort of the subject matter experts from the AFME Utilities Working Group who have contributed to this report. I hope that the perspectives and findings outlined in this report are insightful and further support the important role which utilities can play within capital markets.

James Kemp
Managing Director
GFMA and AFME

Industry Utilities: A Perspective for Capital Markets

1. Executive Summary

AFME's Technology and Operations Division established a Utilities Working Group with the objective of increasing the awareness, efficiency and adoption of utilities in capital markets. The initial goal of the group has been to identify the factors that could lead to the development of successful utilities, those factors that hinder collaboration and success and the future opportunities that exist for the industry.

We define a 'utility' as an offering that has at least one of the following core characteristics: creation and provision of a network; application of a standard approach; and ability to demonstrate economies of scale in the provision of a commoditised service.

Through a member survey, we have identified several recurring themes and messages that we believe are valuable to share with the industry to provoke debate and constructive dialogue. We conclude that:

- **Utilities provide their members with cost and efficiency savings, enhanced risk management opportunities and scalability**

  Utilities offer a way for participants to collaborate on areas of mutual interest and realise shared benefits, such as increased transparency of activities, simplified data aggregation and reporting.

  There are many ways that utilities can be provided which we have grouped into five high-level operating models, ranging from provision via a single financial institution versus a third-party joint venture.

- **A set of principles can be applied to promote the effectiveness of utilities**

  We have developed eight principles that aim to increase the adoption and benefit of utilities. These principles cover: governance, transparency, compliance, standards, interoperability, scale, economic sustainability and market efficiency.

- **However, there are many barriers which act to impair the effectiveness and adoption of utilities**

  We have identified a number of high-level areas where common barriers exist for utilities. These include both internal and external factors facing financial institutions and the industry.

- **Standards and industry collaboration are fundamental in realising the maximum benefits**

  We believe that industry standards are critical for increasing the consistency, interoperability and participation levels of utilities. Greater collaboration across financial institutions, policymakers and authorities, third-parties and regulators will be needed to address the many barriers to utilities.

- **There still remains a wide range of opportunities for utilities within capital markets**

  Through our survey and in discussions with our members we identify five key themes and ten specific opportunities including KYC, reference data and regulatory reporting, that have the potential for a utility service.

- **We conclude that for utilities to succeed:**

  - Financial institutions need to work collectively, emphasising long-term benefits and focusing on areas of common and non-competitive need.

  - Policymakers and authorities can play a key role in facilitating and contributing to the industry dialogue.

  - Third-parties and regulators can support the industry by focusing on the importance of standardisation and interoperability in utility offerings.

2. Contributors to this Guide

We are grateful to our member firms and the individuals who contributed their time and thoughts in producing this report.

Members of the Technology and Operations Utilities Working Group include:

Bank of America Merrill Lynch, Barclays, BBVA, BNY Mellon, Credit Suisse, Deutsche Bank, Goldman Sachs, HSBC, ING, JP Morgan, Lloyds Banking Group, Morgan Stanley, NatWest Markets, Nomura and UniCredit.

AFME Technology and Operations Division Members:

3. Utilities in Capital Markets

Introduction

Utilities offer the potential for capital markets participants to reduce costs, improve efficiency and simplify business models. Increasing the integration of utilities for common or 'non-differentiating' industry activities can allow participants to increase their focus and investment on more strategic priorities, such as digitisation and technological innovation or improving client experience and servicing.

Utilities offer a way for all participants, from financial firms to supervisors, to collaborate and pool resources and capabilities. This collaboration on shared requirements can bring mutual benefits, such as increased transparency of activities, or simplification of mandated reporting and data aggregation.

The purpose of this report is to provide a capital markets-specific perspective on the core characteristics, challenges and opportunities for utilities in the industry. This will, in turn, help to support the dialogue and collaboration that is required to achieve the opportunities that have been identified.

The utilities concept

While there is a high-level understanding of what is implied by the term 'utilities', there is no single definition that is used as a common reference. There is, however, a conceptual view of what constitutes a 'public utility' and how a public utility provides the underlying infrastructure and services for our needs (e.g. to supply electricity or water to homes and businesses).

We believe that this is a simplistic view, of less use within capital markets and open to interpretation. This conceptual understanding raises additional questions for consideration, such as:

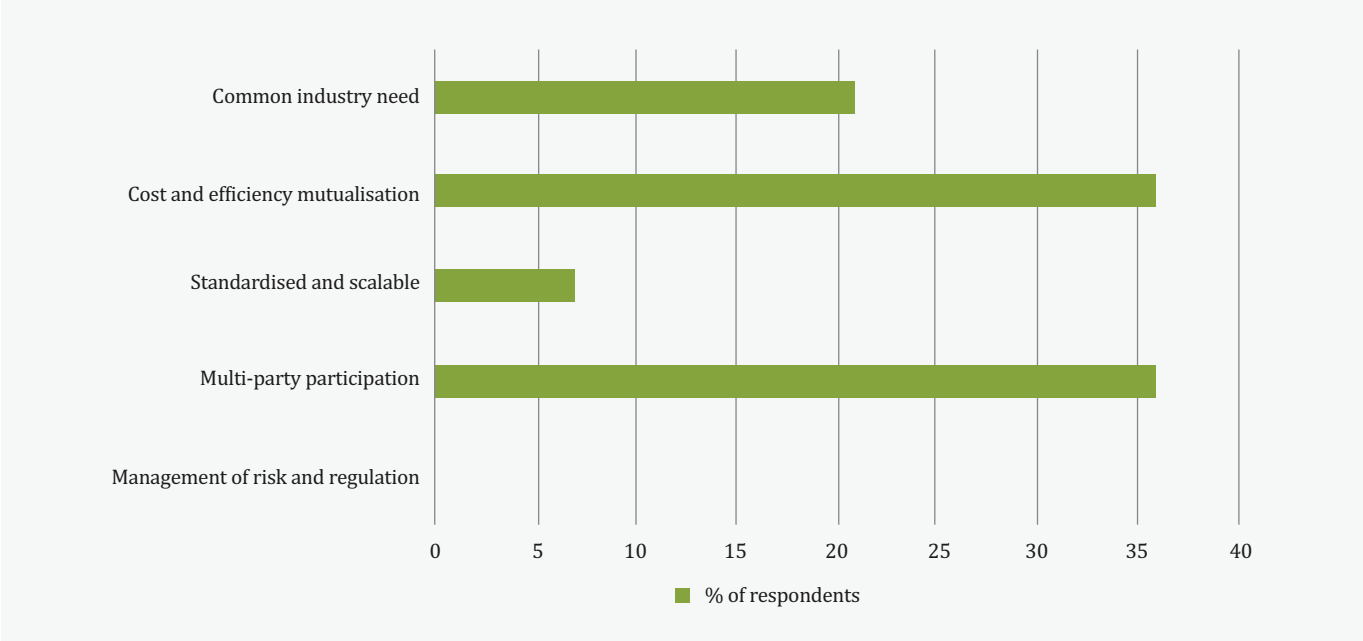
- *Should utilities be public or privately owned?*
- *Should they be profit generating or operate on a cost recovery basis?*
- *Should utilities deliver cost, risk and efficiency gains to all participants?*
- *How many participants are needed for it to be called a utility?*
- *Must utilities have, or provide, standards for how a service is provided?*
- *What are the key competition law sensitivities?*
- *What regulatory issues exist or need to be addressed?*

AFME member survey

In order to create a definition of what constitutes a utility within Capital Markers we surveyed our Working Group members on their requirements when selecting and using a utility. Three features were prominent in their responses, illustrated within Figure 1 below. These were:

- Shared cost and efficiency gains
- Multi-party participation
- Common industry need

Figure 1: **Key areas of importance when selecting a utility**



Source: AFME

These features suggest that successful utilities have a cooperative approach among their many participants and that investment and benefits are shared equally or are proportionately distributed. In addition, the feature of a common industry need suggests that utilities should be both applicable and beneficial to many different participants.

While managing risk and regulation was not seen as a key area of importance for defining a utility, feedback from members identified that regulatory compliance and oversight has played an important role in the success of many utilities that exist today.

Survey feedback also suggested that, as utilities grow in complexity and in the range of services they offer, the regulatory oversight they face can also increase. This can support the development of a utility but also introduce additional participant costs and governance, thus changing some of the original benefits seen. The Bank for International Settlements (BIS) Principles for Financial Market Infrastructures (PFMI) is an example where standards have been introduced that are intended to strengthen and preserve financial stability for services which are deemed critical to financial markets.

Core characteristics of a utility

Considering the general concept of what constitutes a utility, as well as the feedback from our member survey, AFME defines that a utility in capital markets should have at least one of the following core characteristics:

i. The creation and provision of a network;

ii. The application of a standardised approach; and

iii. Demonstrate economies of scale in the provision of a commoditised service.

Utility operating models

Through our analysis, we identified that there is no single operating model that exists or can be applied to utilities. The operating model type is largely dependent on both the founding participants or vendors at the point of setting up the utility and the needs of the current and future users. Utilities and how they are organised may also change over time (e.g. through acquisition).

Utilities are usually established in response to a general market problem which is seen to impact a variety of different types of market participants, or a specific internal problem encountered by some market participants, often sharing the same profile.

Utilities that are created in response to a general market problem typically have as their prime characteristics the provision of both a network (connecting different types of market participants) and a standardised approach. The example of such a utility is a central securities depository (CSD), which, amongst other things, connects issuers and investors. Interestingly, CSDs also provide economies of scale in the provision of a commoditised service.

Utilities that respond to the internal problems of market participants typically have as their prime characteristic the provision of economies of scale via a commoditised service (e.g. reference data).

Through our Working Group we identified multiple utility operating models which we have grouped into five classifications, illustrated in Figure 2 below.

Figure 2: **Utility operating model types**

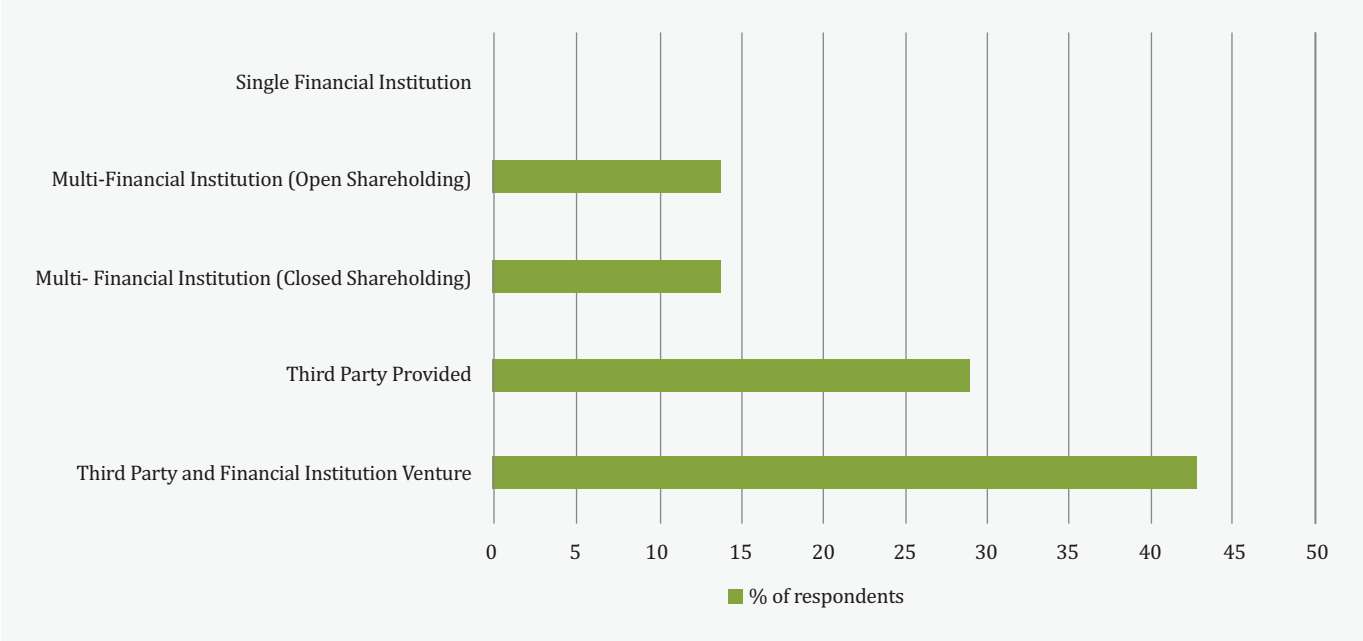
Utility Models	
i. Single Financial Institution	A single financial institution acts as a utility provider for multiple participants
ii. Multi-Financial Institution (Open Shareholding)	Multiple financial institution are shareholders in a utility that is available to other participants
iii. Multi- Financial Institution (Closed Shareholding)	Multiple financial institution are shareholders in a utility that is closed to other participants
iv. Third-Party[1] Provided	One or more third-parties act as a utility provider to two or more participants (open or closed)
v. Third-Party and Financial Institution Joint Venture	One or more third-parties and multiple financial institutions form a joint venture utility that is made available to other participants (open or closed)

Source: AFME

Our survey suggests that many of our members identified 'third-party and financial institution joint venture' as a preferred approach for providing a utility (see Figure 3 on the next page). We believe that this demonstrates the important role that both financial and non-financial institutions can, and do, play within the provision of utilities.

1 Third party is defined as any other market participant that is not a bank receiving (primary) or providing (secondary) a utility service.

Figure 3: **Degree of preference for each operating model type**



Source: AFME

While financial institutions are well placed themselves to provide utilities and bring expertise related to how a given service or process is required to operate, it is acknowledged that a third party can bring additional benefits. These benefits include capabilities or expertise in relation to underlying technology platforms and innovation, implementation and change capability, independence and impartiality, and commercial options such as managed services.

4. Principles for Best Practice

We believe that to achieve their maximum scale and benefit, utilities should be as interoperable and harmonised as possible. For this to occur, we believe that there needs to be a series of consistent principles to which utilities adhere. Our Working Group therefore proposed eight principles that should influence best practices for utilities within the capital markets industry.

The eight principles are as follows:

1. Governance: Participants can apply appropriate governance and influence on the utility. This includes the engagement process, roles and responsibilities of management, performance measured against defined indicators and management of risk.

2. Transparency: The commercial models and services provided are transparent to all involved participants, with relevant rules and data disclosed to authorities as required, for decision-making purposes.

3. Compliance: All applicable compliance obligations, in all jurisdictions that the utility and participants operate, are satisfied. This includes disclosure to reduce risk, increase service confidence, and for the performance of participant control function.

4. Standards: Standard terms, processes and methods are applied for all participants. Standards should make use of existing industry frameworks and information where available or lead to the creation of additional and recognised standards.

5. Interoperability: The exchange and interpretation of information between similar utilities is supported (through standards and common interfaces), to maintain a competitive and open utilities market.

6. Scale: The utility can scale and adapt, where relevant, for increased participation. The utility allows for increased on-boarding of participants through a consistent and objective set of requirements.

7. Economic Sustainability: There is commitment to investment and service improvement as part of an ongoing strategy. This will support increased scale, participation and response to market changes (such as regulation).

8. Market Efficiency: The utility allows for individual participant and wider market efficiencies to be achieved. The utility considers the practical cost and technical implications of its solution to determine the greatest benefit.

As previously discussed in section three, definitions and models of utilities can vary in different situations. Therefore, we suggest that our eight proposed principles are used as a guiding framework, based on what our members see as the key components for utilities and the triggers to determine their effectiveness. These principles can also be used to distinguish the concept of utilities as separate from other organisational approaches, such as the traditional outsourcing of an activity or function.

Still, we recognise that the prioritisation of these principles can, and probably should, vary depending on the service a utility is providing. For example, utilities offering know your customer (KYC) functionality may require a greater focus on the role of governance (to ensure that the quality of information provided is maintained at a satisfactory level), whereas utilities for post-trade activity may require a greater focus on standards and scale (to ensure that re-architecting for each bank is minimised where possible).

5. Barriers to Utilities

Common industry barriers

While the capital markets industry has considerable experience in the use of utilities, and there have been notable successes, the adoption of utilities at scale remains a challenge. There are several barriers that act to impair the effectiveness of existing or proposed future utilities.

We have identified four high level areas (see Figure 4, Industry challenges for utilities) where common barriers exist. These barriers include both internal (e.g. culture and investment) and external (e.g. regulation) challenges for financial institutions.

The barrier examples provided in this report are intended to be illustrative, non-exhaustive, and complement existing work on financial market barriers performed by both the Giovannini Group and European Post Trade Forum (EPTF). The 2003 Giovannini Group report identified fifteen barriers that prevent efficient EU cross-border clearing and settlement[2] and the EPTF 2017 report identified twelve barriers to post trade activity[3].

It is important that barriers are recognised and addressed in current or planned industry initiatives. The four barriers we have identified are discussed in further detail.

Figure 4: **Industry challenges for utilities**

Source: AFME

2 We identify the following Giovannini barriers when considering utilities, specifically: differences in information technology and interfaces; restrictions on the location of securities; clearing and settlement; and variations in national rules relating to markets activity (such as corporate actions).

3 We identify the following EPTF barriers when considering utilities, specifically: lack of convergence and harmonisation in information messaging; complexity to post-trade reporting structures; and unresolved issues regarding reference data and standardised identifiers.

Barrier 1: Case for Change

- **Lack of commitment:** The need for financial institutions to complete, and commit to, a strategic cost-benefit analysis that considers the investment, financial return and benefits for the setup, or adoption, of a utility.

  - *Often this is a sizeable undertaking that results in significant investment being required to make the migration to a utility viable. Limitations to funding or the ability to commit funding over a long-term horizon and difficulty in clarifying or realising short-term benefits can prevent financial institutions from progressing at an early stage. Cost-benefit analysis will also differ between financial institutions when considering a utility, as will the appetite and resources available to invest in the change.*

- **First-mover disadvantage:** The up-front challenge for many utility participants of being the first, or within an initial cohort, of firms moving to a utility which may be at an early stage of maturity and therefore has an increased risk of not succeeding.

  - *The risk of long-term benefits tied to increased uptake and scale (economies of scale) not materialising. This is especially the case for utilities that provide networks (the network effect may lead firms to question their interest in being a first-mover).*

- **Absence of suitable options:** A lack of existing utility offerings which provide some or all the services a financial institution needs, often with a lack of sufficient plans or incentives for on-going development.

  - *Financial institutions largely look at a utility on an individual firm basis, rather than as an industry wide offering with other participants. The lack of industry collaboration contradicts the cooperative nature of utilities that is required for success.*

- **Past judgment and bias:** Financial institutions can be less willing to execute a change due to not wishing to get 'locked in' to what may become, or be perceived as, a key risk: a utility becoming a single provider monopoly service.

  - *Existing partnerships between banks, utilities and third parties may act to limit change in the industry, due an assumed bias or perception that new or existing utilities are not required (or feasible).*

Barrier 2: Transformation

- **Lack of existing standards:** A lack of standards for many capital markets-related activities that would be of benefit for utilities, such as data models, processes and reporting[4].

  - *Providers may be unable to offer a solution to serve many participants without having to introduce a high level of specialism. A lack of standards limits the ability for providers to scope out discrete offerings that can be provided as a utility.*

- **Complex business models and operations:** The complexity of migrating to a utility due to existing complicated operational structures and processes that have developed within a financial institution over time.

  - *Complexity increases the time required to achieve a production-ready service, which ultimately reduces the short-term gain that may be required to justify any initial investment. Moving to a utility can also introduce operational and operating model change complexity (for example, where a new utility has been established and new or transferred staff are required as part of the change).*

- **Legacy platforms and technologies:** The burden of legacy technology that many financial institutions must manage when moving to a utility and the inability to 'switch off' legacy platforms in the long-term to realise cost benefits.

  - *In many cases, it may not be possible to fully remove legacy technologies due to some bespoke services requiring in-house support (such as reconciliations or reporting activity). In this case, the benefits from large-scale decommissioning of platforms, or reductions in resourcing required for on-going support, may not always be achievable.*

4 It is acknowledged that several associations, such as the International Swaps and Derivatives Association (ISDA), are continuing to work on developing key industry standards (such as documentation, domain models and on-boarding).

Barrier 3: Operations

- **Forfeit of control:** The actual, and perceived, change of responsibility and reliance a financial institution has over a set of activities and controls, particularly for previously in-house managed activities that will transfer to a third-party.

  - *The level of service received may appear to decrease, as the flexibility that was previously available is changed (reduced) when a set of standard service measures are implemented across multiple participants in a utility.*

- **Minimal long-term investment:** The lack of long-term investment required to deliver improvements or realise their intended benefits, of the utility.

  - *A lack of investment can be related to the operating model of a utility (e.g. a limited service offering, low starting capital, diverse stakeholders). The lack of a long-term investment plan may reduce the willingness for other participants to adopt the solution and can lead to the utility becoming too specialised. Clients may continue to use the service because the costs to move are too prohibitive (or there is a lack of choice of alternatives).*

- **Growing concentration and security risk:** The increased threat of a single or small number of utilities leading to the concentration of a specific industry function or service, may increase technology, financial or security risks by introducing single points of failure.

  - *The growing threat and impact of cybersecurity events can place increased risk on utilities where they are interconnected to a high number of participants or operate as a single hub.*

Barrier 4: External Factors

- **High volume of regulatory change:** The ability of a financial institution to invest in strategic opportunities, such as utilities, can be limited by the need to prioritise resources on continued regulatory change.

  - *While regulatory change can present opportunities for utilities, the cost and time pressure on individual firms to meet regulatory requirements can instead act as a barrier for other strategic, more value-added change or investment in new projects.*

- **Increasing third-party risk:** While certain utilities may fall under regulatory oversight and supervision, the financial institutions that use a utility predominately remain responsible for managing the risk and liability of the service. A lack of appetite for financial firms to take on additional responsibility or risk can therefore act as a barrier to change.

  - *Equally, regulators may place additional responsibilities on market infrastructures to manage and enforce rules on financial firms, which can also act as a barrier.*

- **Market fragmentation:** Competition within the industry to provide the same services can create fragmented utility offerings and varying levels of participation and scale.

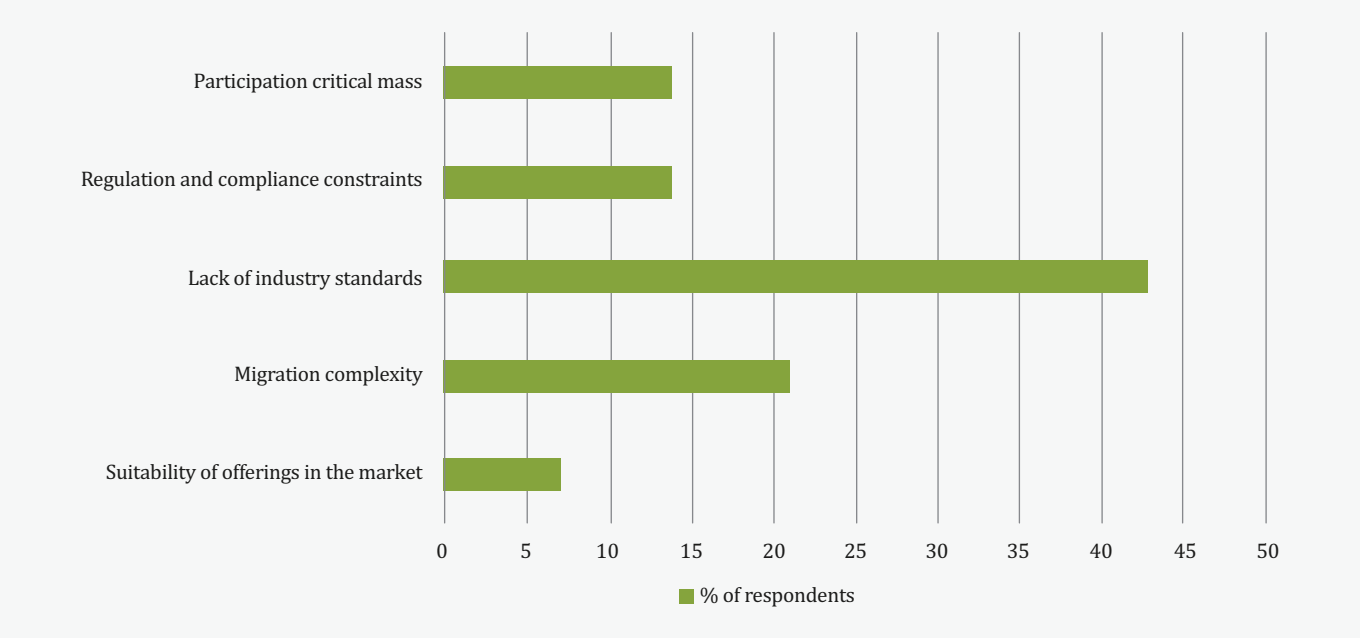
  - *The increased number of offerings can prevent a critical mass of participants being achieved within a single utility and limit the economies of scale that may be required to make a utility a commercial success. A wide range of offerings (often competing in a single area) can result in low levels of maturity for any given solution as investment and participation is spread too thin.*

  - *The risks that a utility may become a competitor to a financial institution for the same, or other related services, can also prevent utility adoption. Equally, financial institutions need to consider any anti-competition implications when setting up or participating in a utility.*

The importance of standards and collaboration

In our members survey, the lack of industry standards was identified as the most critical challenge and barrier for the adoption of utilities (see Figure 5 below).

Figure 5: **Challenges for the adoption of utilities**



Source: AFME

Standards are critical for increasing the harmonisation of and interoperability of utilities, which in turn can increase participation levels. While a level of specialisation is required for many utilities, a lack of standardisation and interoperability in the industry for many non-differentiating activities (such as KYC) remains a challenge.

However, member feedback showed that greater collaboration across financial institutions, policymakers, authorities, third-parties and regulators will be key in addressing the many barriers to utilities identified in this report, including increasing standardisation.

Financial institutions need to work collectively to place greater emphasis on what is the long-term benefit for the wider industry, focusing on areas of common and non-competitive need. Policymakers, authorities, third-parties and regulators can play a key role in facilitating and contributing to the industry dialogue, ensuring that the standards and benefits of utilities are achieved for all participants.

6. Opportunities

Identifying the opportunities for utilities

In this report, we have examined the drivers which can contribute to the success of a utility, as well as barriers which may hinder their development. Through our discussions with the Working Group, it was clear that there are many potential opportunities for the development of utilities within capital markets and that there are many existing utilities that could be improved, by better aligning to the principles for best practice set out in this report.

We therefore surveyed our members in order to identify which areas they consider as having the highest potential to be addressed by a utility service.

Survey approach

To provide a consistent terminology, we developed a taxonomy of capital markets functions to use within the survey. The taxonomy was grouped into five functional themes:

i. **Contact and On-boarding:** The on-boarding of existing or new clients

ii. **Trade Execution:** The identification, execution and capture of trading activity

iii. **Post-Trade Operations and Servicing:** The trade lifecycle and required asset servicing

iv. **Compliance and Regulatory:** The compliance needs to fulfil internal and external obligations

v. **Legal and Finance:** The common financial and legal services that underpin the trade lifecycle

These five themes were then subdivided into thirty-seven sub-functions which were used as the basis for our survey. A description of each sub-function is provided in the Appendix Figure 8.

We assessed each of the thirty-seven sub-functions against three high-level variables determined as being critical by members of our Working Group. These variables, listed below, are aligned to our definition of the core characterises of utilities (see Section 3).

The variables were used to identify sub-functions where utilities could demonstrate:

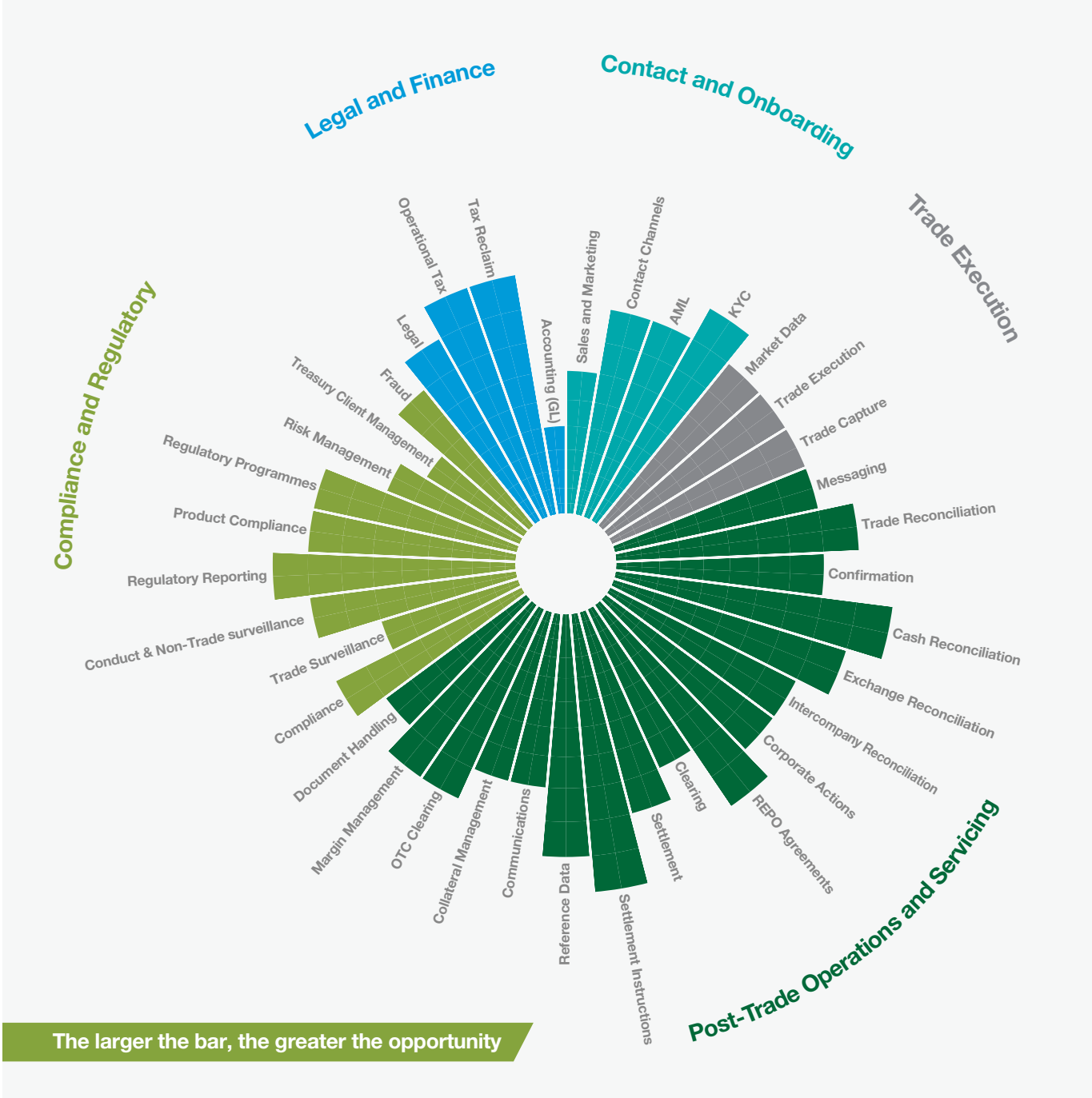
- **Economies of scale in cost and efficiency**
- **Shared benefits from participants collaborating to a standardised approach**
- **The creation and provision of a scalable and multi-participation offering**

Survey Findings

Figure 6 below provides an illustration of the outcome of the assessment of each of the 37 sub-functions. The ten sub-functions considered most suitable for utility are those that extended furthest outwards from the centre of the diagram.

Utility Assessment Findings Summary

Figure 6: **Summary of utility opportunities by function**



The sub-functions listed in Figure 7 below are a shortlist of the potential opportunity areas identified from the survey. Whilst this is non-exhaustive, it is intended as an initial illustration from our members of areas for possible future attention.

Figure 7: **Shortlist of potential opportunity areas**

Function		Description	
A	**Contact and Onboarding**	KYC (Know Your Customer)	Identifying and verifying individuals or institutions
C	**Post-Trade Operations and Asset Servicing**	Trade Reconciliation	Reconciling and matching trade data
		Cash Reconciliation	Reconciling and matching cash balances and accounts
		Exchange Reconciliation	Reconciling and matching exchange-related data
		REPO Agreements	Short-term borrowing of government securities
		Settlement Instructions	Standard terms to facilitate transaction settlement
		Reference Data	Counterparty and security identifier data
D	**Compliance and Regulatory**	Regulatory Reporting	Mandated reports to fulfil regulatory requirements
E	**Legal and Finance**	Operational Tax	Client related tax and reporting
		Tax Reclaim	Claim of withholding tax

Source: AFME

Of the five functions, the two thought most likely to yield benefits were i) Post-Trade Operations and Servicing and ii) Contact and Onboarding.

We believe these were the most prominent because, strategically, these areas have very little competitive advantage on a firm-by-firm basis. Our members suggested that these functions are costly and complex to manage and would benefit from increased standardisation. However, we also recognise that these functions are both complex areas where utilities (both existing and proposed) are consistently challenged, especially given the known differences in jurisdictional regulatory requirements.

The findings of the survey are complementary to the 2017 report by the European Post Trade Forum (EPTF) on financial market barriers. It can be inferred from the EPTF 2017 report that utilities could be useful in the areas of withholding tax, corporate actions and general meetings, registration and investor identification, and in the complex area of post-trade reporting. A number of these areas were also identified through our survey.

7. Conclusion

Our members believe that utilities are an important way for Capital Market participants to realise cost and efficiency savings, as well as providing enhanced risk management opportunities. This is also an appropriate time to consider utilities as the industry looks towards its post-crisis future, operating within new regulatory frameworks and faced with a rapidly changing technological landscape.

There remains a significant range of opportunities for further, or enhanced utilities, across many areas of financial services. Areas that are common or 'non-differentiating' for many participants should be the initial areas for the industry to prioritise. These typically remain in the areas of client onboarding and post-trade servicing, but our report has also identified additional areas for consideration.

However, while there are many opportunities and notable successes to date, the adoption of utilities at scale remains a challenge in capital markets and there are a number of barriers. The importance of greater standardisation and collaboration across the industry is key. Utilities represent an opportunity for a wide range of participants – banks, policymakers, regulators, third-party suppliers – yet require a collective effort for their benefits to be realised.

We suggest the following three recommendations to the industry:

- Financial institutions need to work collectively, placing greater emphasis on the long-term benefits for the wider industry and focusing on areas of common and non-competitive need.
- Policymakers and authorities can play a key role in facilitating and contributing to the industry dialogue that is needed, ensuring that the standards and benefits of utilities are achieved for all participants.
- Third-parties and regulators can support the industry by focusing on the importance of standardisation and interoperability in utility offerings to help drive increased adoption and uptake in the market.

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Appendix

Figure 8: **Capital Markets Functional Model**

	Function		Sub-Function	Description
A	**Contact and Onboarding**	**1**	Sales and Marketing	Generating, marketing and selling financial products
		2	Contact Channels	Contact centres and front-end channels
		3	AML	Anti-Money Laundering (AML) procedures, laws and regulation
		4	KYC	Identifying and verifying individuals or institutions
B	**Trade Execution**	**5**	Market Data	Price and trade related data for financial instruments
		6	Trade Execution	Agreement to buy or sell a transaction
		7	Trade Capture	The booking and processing of a trade

	Function		Sub-Function	Description
C	**Post-Trade Operations and Servicing**	**8**	Messaging	Market and trade related messaging
		9	Trade Reconciliation	Reconciling and matching trade data
		10	Confirmation	Providing confirmation of transactions
		11	Cash Reconciliation	Reconciling and matching cash balances and accounts
		12	Exchange Reconciliation	Reconciling and matching exchange-related data
		13	Intercompany Reconciliation	Reconciling and matching data within an institution
		14	Corporate Actions	An event issued by an institution that impacts securities
		15	REPO Agreements	Repurchase agreements (REPO) for short-term government securities
		16	Clearing	Activities between the confirmation and settlement of a transaction.
		17	Settlement	The exchange required to settle a transaction
		18	Settlement Instructions	Standard terms to facilitate transaction settlement
		19	Reference Data	Counterparty and security identifier data
		20	Communications	Internal and external messaging for communication
		21	Collateral Management	Management of transaction related collateral requirements
		22	OTC Clearing	Clearing of over the counter (OTC)_ transactions
		23	Margin Management	Management of transaction margin related requirements
		24	Document Handling	Document retention and destruction

	Function		Sub-Function	Description
D	**Compliance and Regulatory**	**25**	Compliance	The identification, assessment and reporting of compliance matters
		26	Trade Surveillance	Monitoring and investigation of trading activities
		27	Conduct and Non-Trade surveillance	Monitoring and investigation of internal practices
		28	Regulatory Reporting	Mandated reports to fulfil regulatory requirements
		29	Product Compliance	Compliance of product policies and documentation
		30	Regulatory Programmes	Regulatory change and assurance activities
		31	Risk Management	Management of market, credit and operational risk
		32	Treasury Client Management	Administration of an institutions assets and holdings
		33	Fraud	Monitoring and investigation of criminal activity
E	**Legal and Finance**	**34**	Legal	Manage and represent an institution against legal requirements
		35	Operational Tax	Client related tax and reporting
		36	Tax Reclaim	Claim of withholding tax
		37	Accounting (GL)	Management of an institutions accounting books and records

AFME Technology and Operations

AFME's Technology and Operations Division brings together senior technology and operations leaders to influence and respond to current pan-European market drivers and policy. The Division is represented by a committee of senior operations and technology leaders who convene on matters of policy, advocacy and collective interest.

The *Industry Utilities: A Perspective for Capital Markets* report was led by the AFME Industry Utilities Working Group as an initiative within the broader Technology and Operations Division.

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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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deep policy and technical skills

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with European and global policymakers

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broad global and European membership

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organisation and perspective

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