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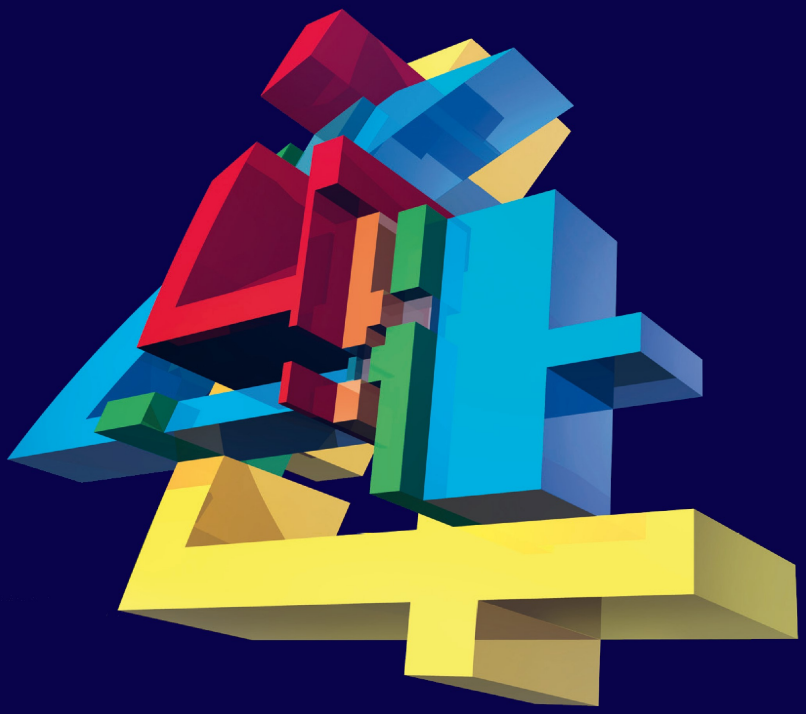

SOLVING COLLATERAL:
BCBS IOSCO UNCLEARED MARGIN RULES
HOW TO ADAPT

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Solving Collateral: BCBS IOSCO Uncleared Margin Rules - How to Adapt

The forthcoming BCBS IOSCO uncleared margin rules are set to make the collateral management process far more demanding than in the current operating environment.

The most immediate impact will be on the sell side. However, there will also be far-reaching consequences for the buy side and other derivatives end users.

The new rules will create a number of headaches for collateral managers, with the potential to increase workload and overwhelm operations teams.

The changes will result in a need to:

- Source more collateral
- Mobilize collateral more efficiently
- Optimize the collateral that is pledged to manage costs
- Deal operationally with the increase in margin calls and collateral movements
- Appropriately segregate collateral
- Manage the quality and concentration risk of the collateral portfolio more closely
- Ensure compliance with a more complex regulatory checklist

This will mean legacy systems and unsupported spreadsheets that are currently widely used will no longer be able to cope with the new operating model.

Responses include increasing headcount, improving systems to enhance automation and straight through processing of margining and leveraging industry utilities wherever possible.

Some level of collateral optimization will also most likely become the norm as collateral costs increase for all market participants.

This paper provides a high level overview of aspects of the US version of BCBS IOSCO rules that impact collateral management, as the US version of the regulations have now been finalized, whereas jurisdictions are still further behind. It then looks at some of the challenges the rules create for collateral managers and operations teams.

The paper also outlines some of the systems changes that need to take place from a technology point of view and offers a list of key action points that firms should start thinking about.

While the initial margin part of the new rules will take a number of years before they start to impact some in the market, the variation margin rules will take effect from March 2017. It is therefore important for all firms trading derivatives to perform an impact analysis and to begin outlining their future target state now to avoid bottlenecks further down the line.

Firms that view collateral as a scare resource that requires active management and invest strategically in technology solutions will tend to outperform those who take a more passive, wait-and -see approach. The infographics on the following pages provide a high level outline of the US version of the BCBS IOSCO rules.

BCBS IOSCO UNCLEARED MARGINING RULES

Some key points in the new regulations impacting derivatives market participants

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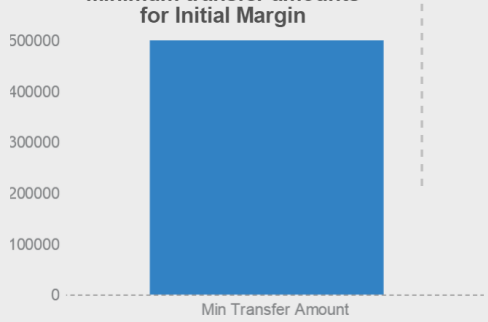
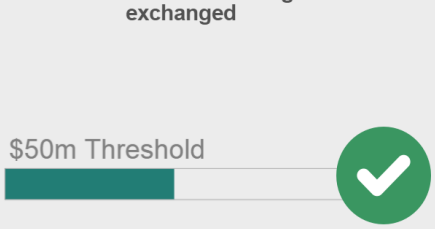
2 Way Exchange of Gross Initial Margin

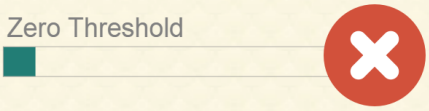


$500,000



Daily Exchange of Variation Margin

Zero Threshold on Variation Margin



Baseline Initial Margin Calculation Methodology

One tailed 99% confidence interval over 10 day horizon

OR:

Internal model requiring regulatory approval

Implementation Timelines

Phased Implementation. Compliance thresholds based on average daily aggregate notional amount of non-cleared derivatives for March, April and May of the previous year (US Rules)

- Initial Margin Phase1
- Initial Margin Phase 2
- Initial Margin Phase 3
- Initial Margin Phase 4
- Initial Margin Phase 5
- Variation Margin Phase 1
- Variation Margin Phase 2

BCBS IOSCO UNCLEARED MARGINING RULES

Some key points in the new regulations impacting derivatives market participants

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Restrictions on Rehypothecation and Segregation of Counterparty Collateral

Increased Collateral Demand

$315b

Additional $315 billion of extra collateral required for initial margin.

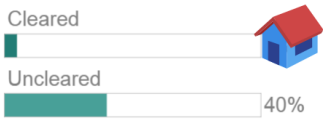
(FED impact analysis)

Increased Funding Cost

$2.5b

(FED impact analysis)

Uncleared 30% to 40% more expensive than cleared trades



(FED impact analysis)

More stringent Settlement Times

T+1

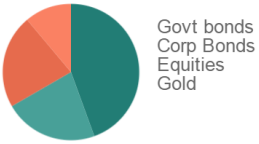
Exchange of margin must take place within one day of trade date

Cross Currency Haircuts

8%

Haircut on trades collateralized with collateral in currency different than settlement currency

Regional regulators define eligible collateral and concentration limits



Global Implementation of the Regulations

Differences in application of rules in different jurisdictions

Some key aspects of the rules differ in the US vs Europe. There are questions around which rules should apply when a US entity is trading with a European entity.

Asian regulators have not yet defined draft technical standards.

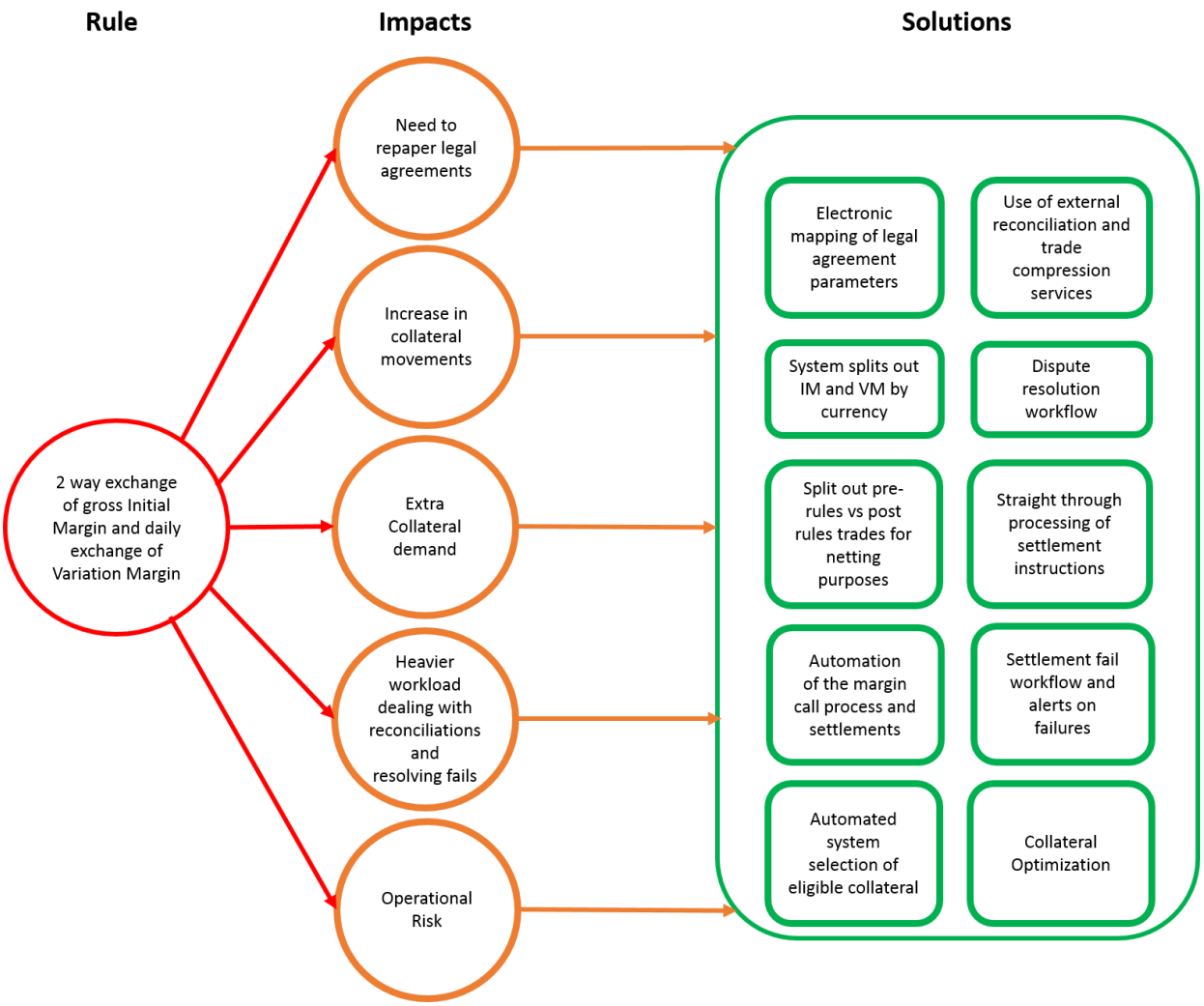
Cross border settlement

Margin must be exchanged on T+1 after the trade date.

This may result in difficulties around regional settlement cycles for US firms trading with APAC firms.

Impacts of the New Rules and Changes to Technology Solutions

1. Two-way Exchange of Initial and Variation Margin with Mandatory Maximum Thresholds and Minimum Transfer Amounts



The two-way exchange of initial and variation margin with specified maximum thresholds and minimum transfer amounts will create a number of issues for collateral managers. This will particularly be the case for firms not used to calculating initial margin, exchanging daily variation margin and processing high volumes of calls.

The rules will require a repapering of CSAs and will also result in a significant increase in collateral movements. These rising volumes will cause an increase in workload for collateral managers and operations teams.

They will now have to deal with more margin calls, more reconciliations, higher volumes of settlement fails and increased operational risk.

1. Two-way Exchange of Initial and Variation Margin with Mandatory Maximum Thresholds and Minimum Transfer Amounts (Continued)

As more collateral is posted with a greater frequency, firms will need to source an increasing quantity of eligible collateral and mobilize it more rapidly.

To support all of this, technology solutions will need to split out initial margin and variation margin by currency. Systems also need to show clear views of old pre-rules trades vs new post-rules bilateral exposures, which are in turn separated from cleared exposures.

The rules do not allow netting between old trades and post-rules trades. Firms may therefore want to consider migrating legacy CSAs over to comply with the new regulations to obtain netting benefits.

Technology systems offering automation and straight through processing around the following areas can help collateral teams cope with the new more demanding environment by reducing manual effort and operational risk:

1. Margin call processing
2. Electronic mapping of CSA terms
3. Selection of eligible collateral
4. Settlement
5. Reconciliations
6. Disputes

2. Baseline Initial Margin Calculation With a One-Tailed 99 Percent Confidence Interval Over a 10-Day Horizon

1 The new regulatory regime specifies two methods of calculating initial margin:

1. A Standardized Margin Method
2. An Internal Model Method

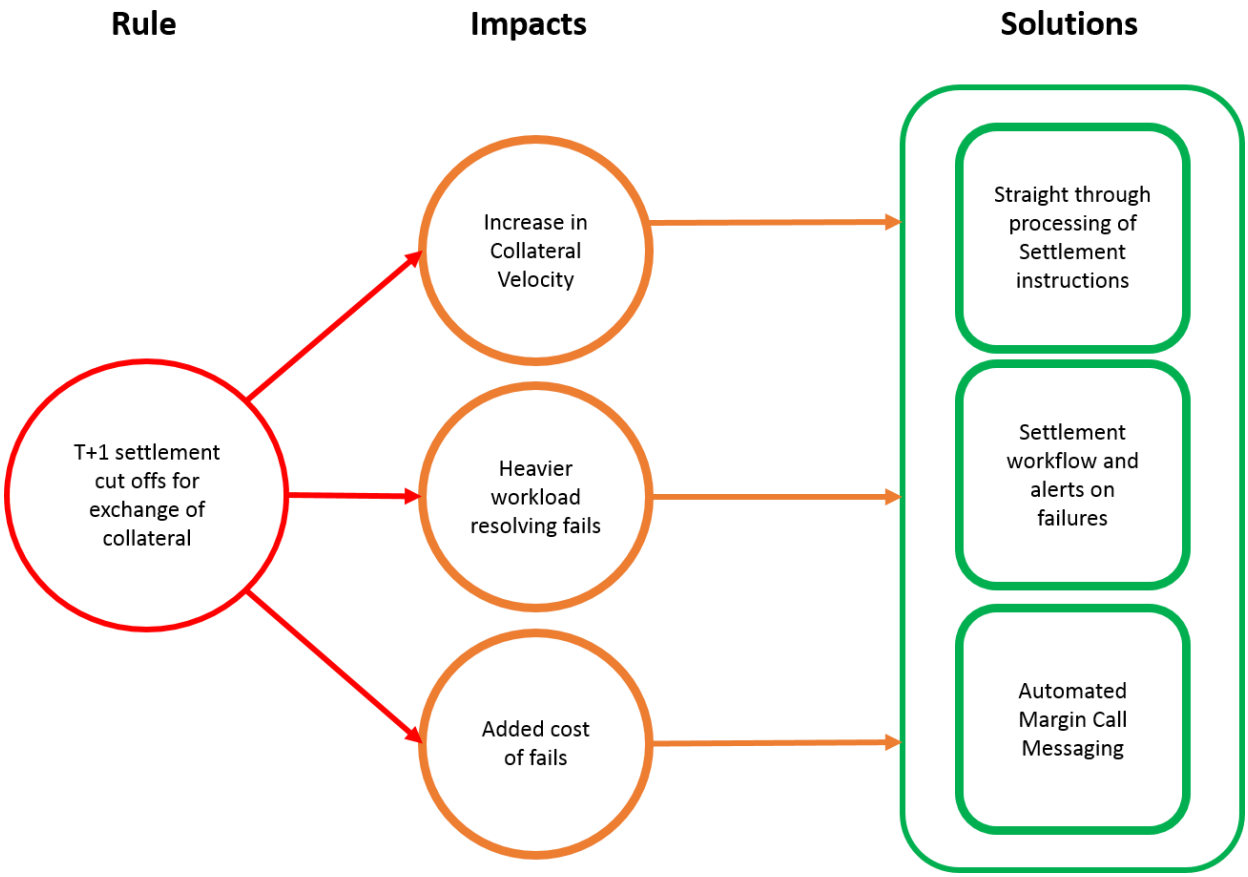
Internal models can provide some benefits in terms of reducing the amount of initial margin that is required. However, internal models must have regulator approval and are subject to periodic review.

Using a standardized model will reduce the prevalence of disputes between counterparties and can be easier to calculate.

ISDA has produced a Standard Initial Margin Model (SIMM)™ that can offer some of the benefits of an internal model, while promoting similar margin calculations between counterparties using a standardized approach that should reduce the incidence of disputes.

3. Shorter Settlement Cycles for Collateral

The BCBS IOSCO rules stipulate that initial and variation margin must be posted and collected on a daily basis no later than the day after trade date.



These shorter settlement cycles will create an added strain on operations. Firms will now need to be able to mobilize collateral at a higher velocity than in the past, often across multiple timezones and custodians/CSDs.

While this timezone issue may appear to cause headaches for a trade between a US entity and an Australian counterpart for example, the rules do offer some clarity around how this will be managed.

According to an FDIC outline of the rules:

> *"If at the time the parties enter into the swap, it is a different calendar day at the location of each party, the day of execution is deemed to be the latter of the two calendar days.*
>
> *For example, if a covered swap entity located in New York enters into a swap at 3:30 p.m. on Monday with a counterparty located in Japan, in the Japanese counterparty's location, it is 4:30 a.m. on Tuesday, and the day of execution (for both parties) will be deemed to be Tuesday.*

3. Shorter Settlement Cycles for Collateral (Continued)

For example, if a covered swap entity located in New York enters into a swap at noon on Friday with a counterparty located in the U.K., in the U.K. counterparty's location, it is 5:00 p.m. on Friday, and the U.K. counterparty will be deemed to enter into the swap the following Monday.

Or, if a covered swap entity located in New York enters into a swap at noon on Friday with a counterparty located in Japan, in the Japanese counterparty's location, it is 1:00 a.m. on Saturday, and the Japanese counterparty will be deemed to enter into the swap the following Monday. In both examples, the day of execution (for both parties) will be Monday."

Source: https://www.fdic.gov/news/board/2015/2015-10-22_notice_dis_a_fr_final-rule.pdf

Despite these allowances, there will still need to be a huge increase in settlement efficiency among market participants.

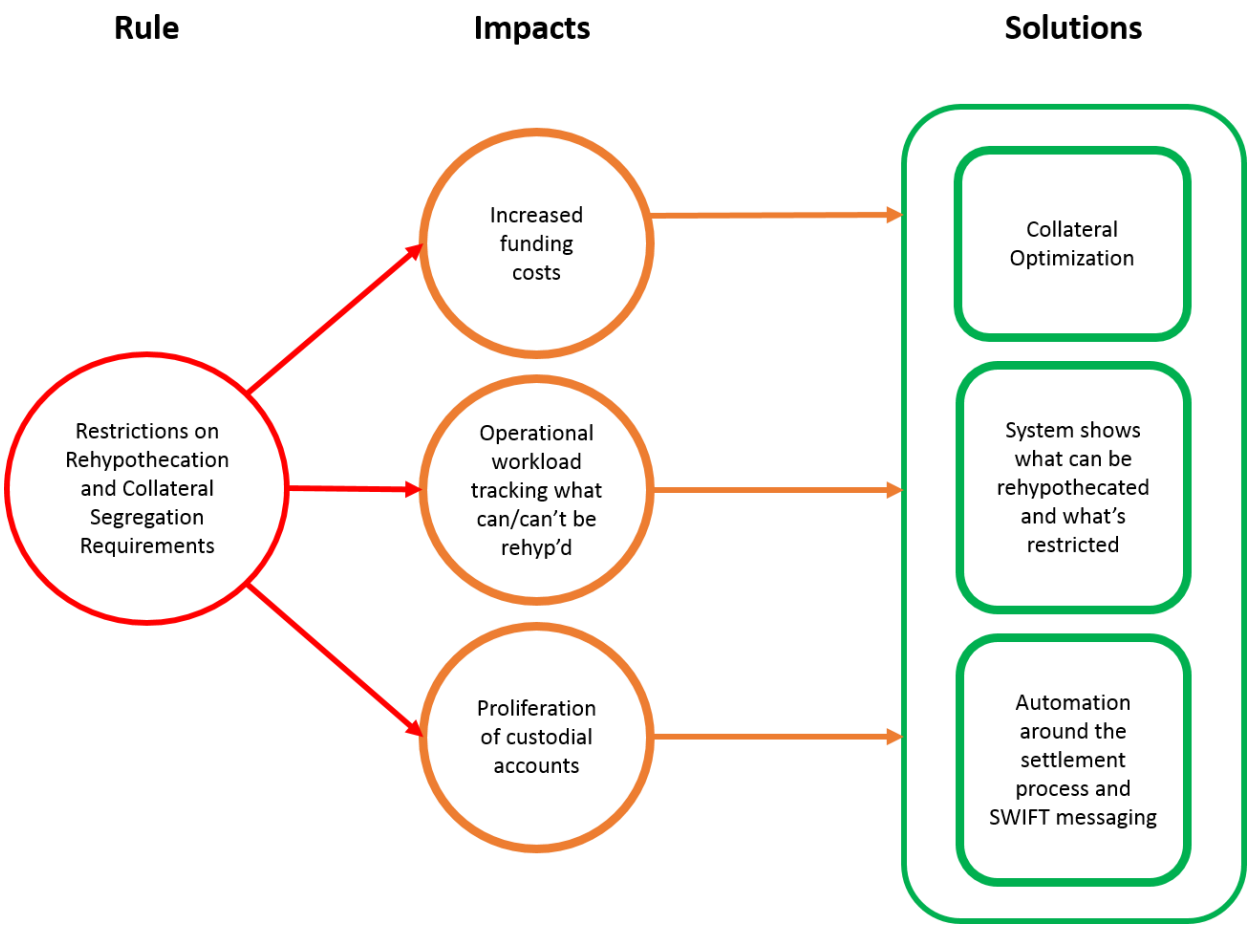
Solutions to this will need to be implemented both at the firm level and in terms of the market infrastructure that provides the plumbing for mobilizing collateral.

At the firm level, automation and straight through processing of settlement instructions to manage cut off times and workflow and alerts around settlement fails will be key to helping collateral teams manage this operational burden.

4. Restrictions Around Rehypothecation of Collateral and Requirements for Segregated Accounts for Collateral

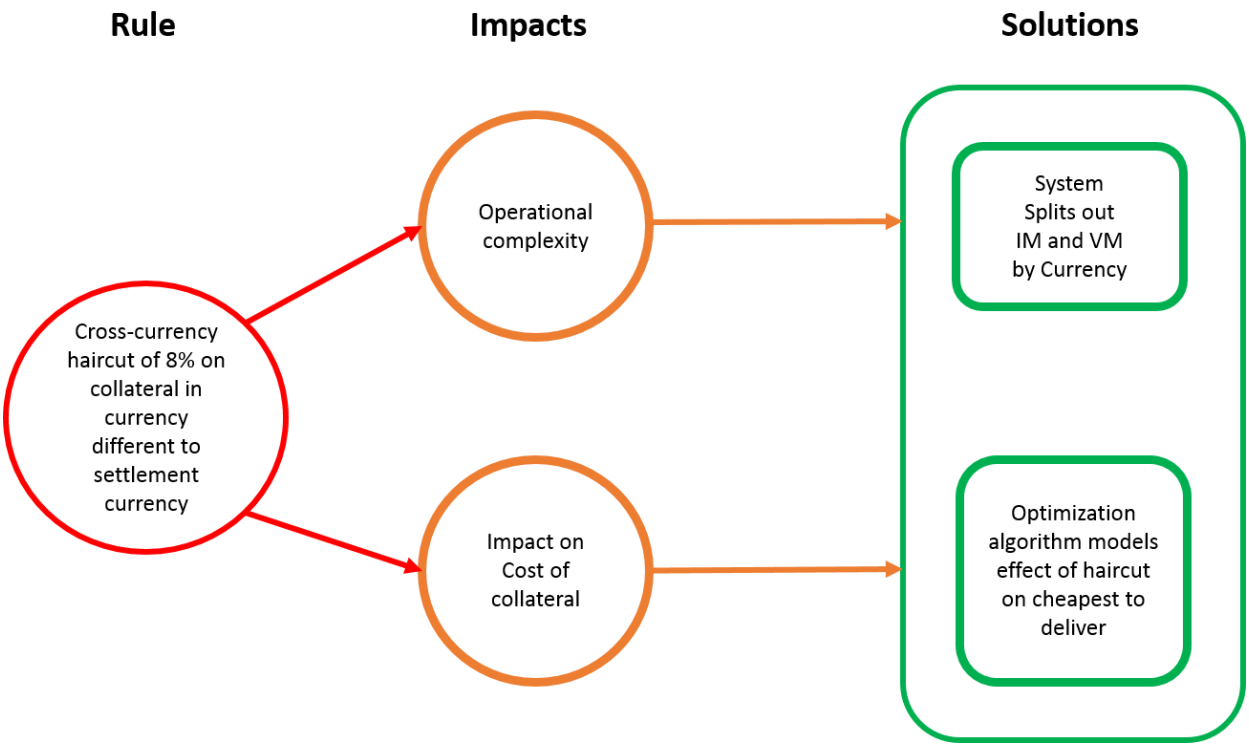
The rehypothecation restrictions mandated by the rules will add a lot of complexity to the collateral lifecycle process. Systems need to be able to clearly show what is available for rehypothecation and what is restricted.

The need for segregated custodial accounts will result in a proliferation of different account structures for IM and VM, all with their own settlement instructions. As discussed above, systems that can automate the settlement process and provide streamlined support for SWIFT message routing will help collateral teams to adapt to this demand more smoothly.



5. Cross Currency Haircut of 8% on Collateral in a Currency that Differs from the Settlement Currency

Cross currency haircuts will drive a need to split out Initial Margin and Variation Margin in technology systems *by currency*.



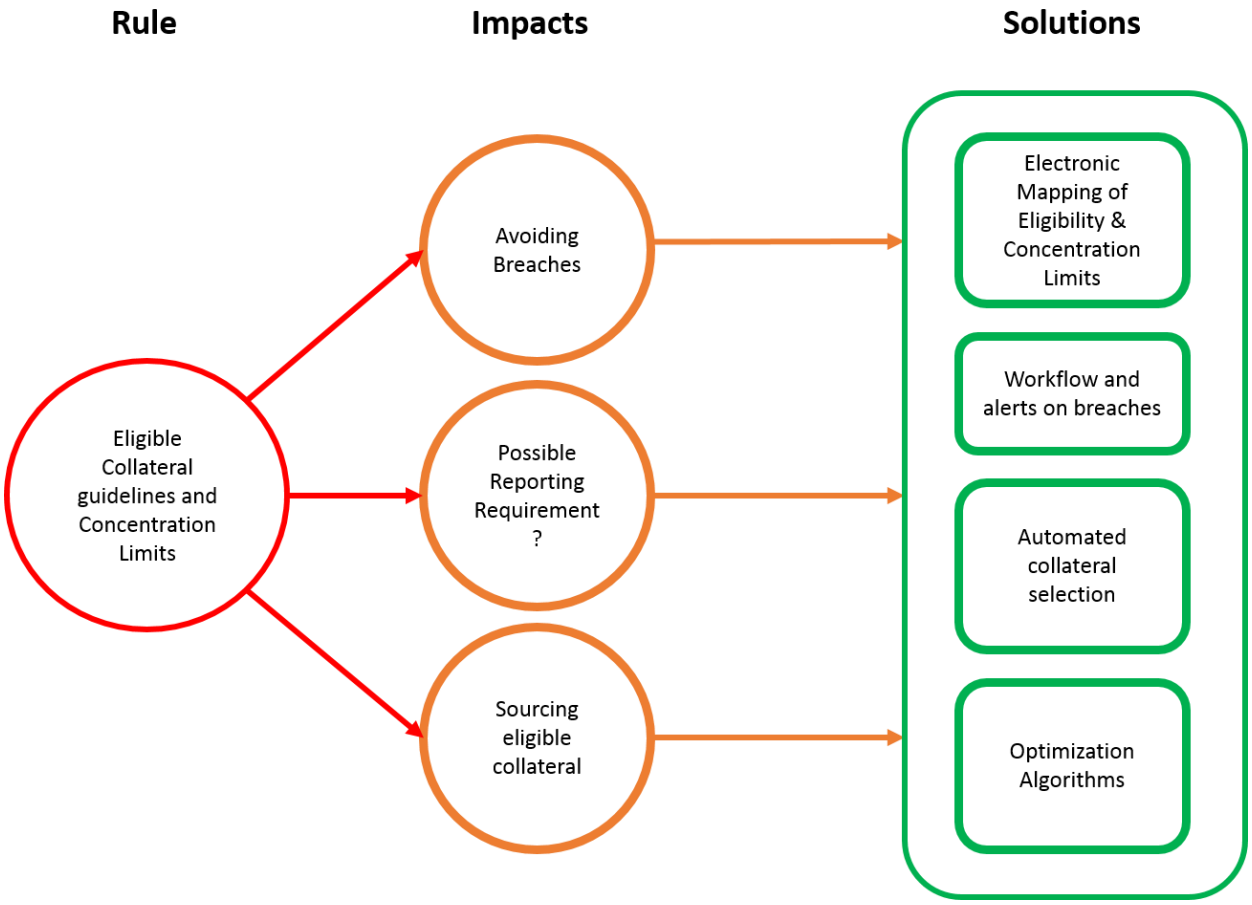
The new haircut may also make it uneconomical to post margin in a currency that differs to the settlement currency.

As a knock on effect of this, optimization algorithms that select the cheapest to deliver collateral to post against margin calls will need to factor in the haircut weighting when selecting lowest cost assets.

6. Collateral Eligibility Schedules and Mandatory Concentration Limits

The new rules specify lists of eligible collateral, haircuts and concentration limits. There is also a requirement to avoid wrong way risk in the collateral received. An example would be taking in a counterparty's own bonds as collateral.

Different regional regulators may specify different eligible collateral and concentration schedules, creating added complexity.



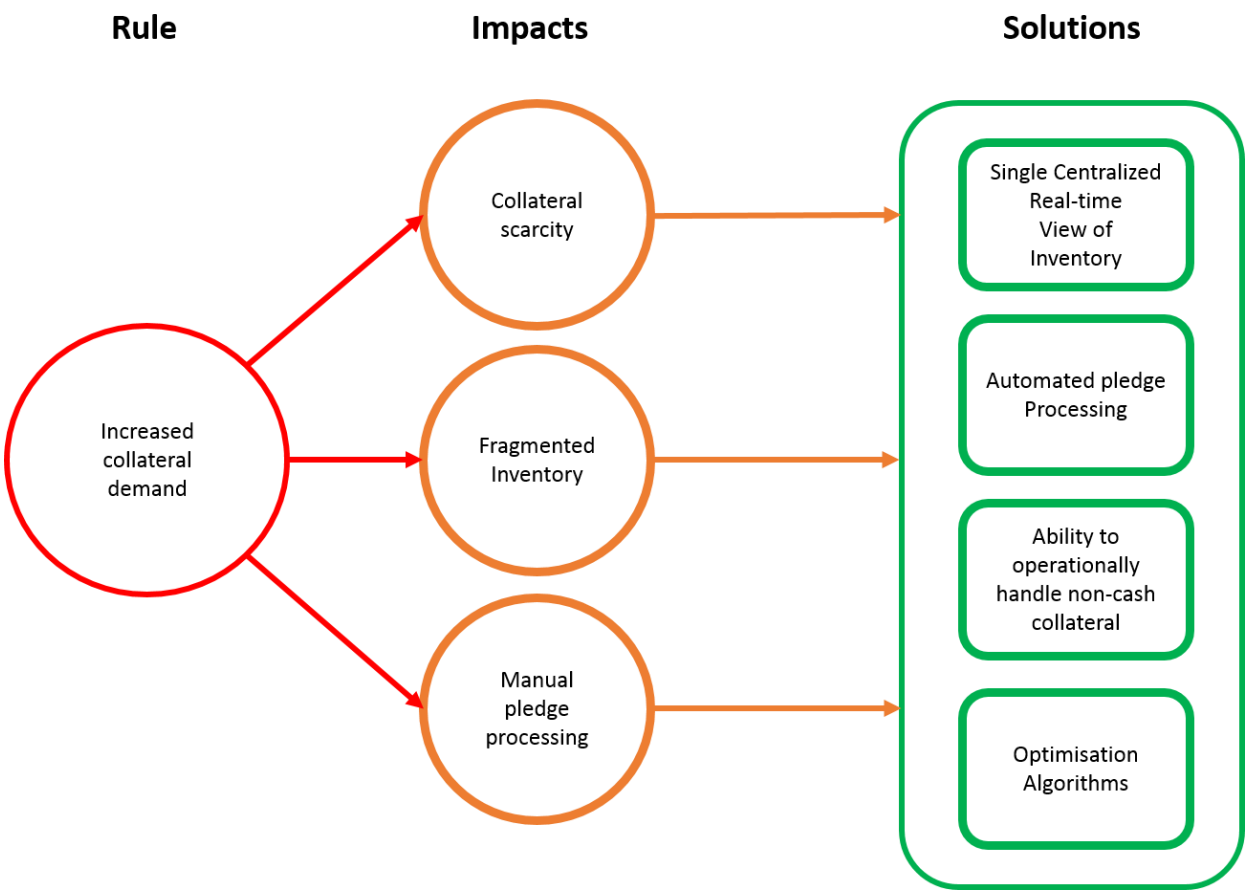
Systems that can electronically model eligibility schedules and haircuts in a flexible way, while offering support for detailed concentration limits will help to manage this process.

Workflow to automatically pledge collateral that meets eligibility guidelines and provides alerts on breaches in both pledged and received collateral will also be key.

It is not yet clear how regulators will require covered firms to report these parameters to ensure compliance. However, systems that can easily extract this data on demand will significantly ease the burden of demonstrating to regulators the firm is not in breach of the rules.

7. Increased Collateral Demand

In addition to a need to automate and streamline the end-to-end margining lifecycle, the rules will also create heightened demand for eligible collateral.



In a recent impact analysis study, the Federal Reserve has estimated the US rules will create a need for an additional $315b of extra collateral. This will result in an increase in funding costs of approximately $2.5b.

These are estimates and depend on prevailing market conditions at a given point in time. However, they provide some indication of how much additional collateral firms will need to source.

At the same time, this added need for uncleared margin will coincide with the introduction of the central clearing mandate in Europe, which will also create a further collateral demand.

The impact of the leverage ratio on the repo markets, which are the key systemic transmission mechanism for collateral may also reduce collateral fluidity. This could occur at the same time as the need to mobilize collateral becomes even more vital to financial institutions.

To cope with this added collateral demand, some level of collateral optimization will likely become the norm for most firms, due to the clear business case and cost savings. However, this will, by definition differ from one firm to the next in terms of the level of sophistication employed in optimization runs.

7. Increased Collateral Demand (continued)

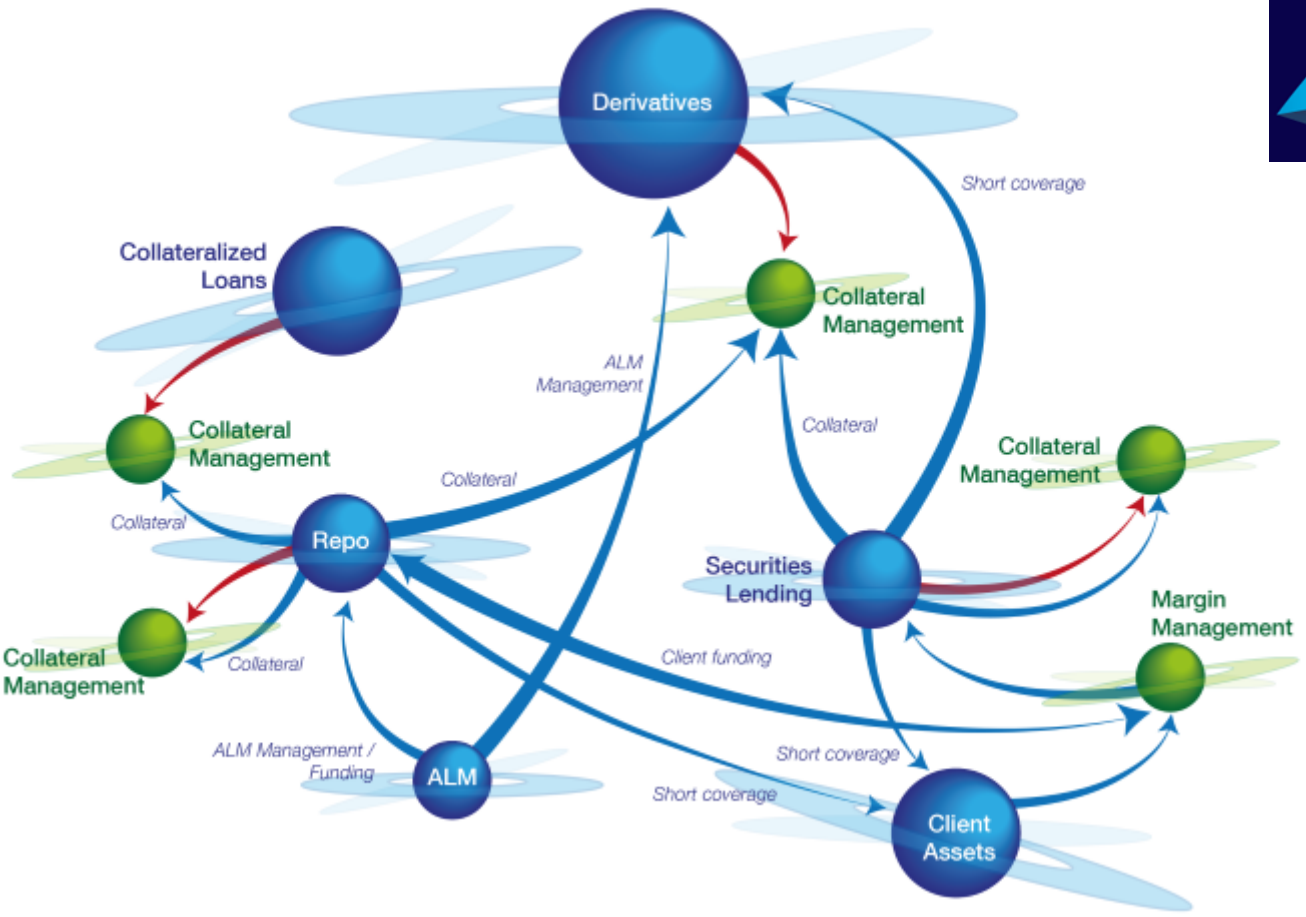
The use of non-cash collateral also appears to be increasing as firms seek to avoid holding excess cash for margin. Systems that can cope with the added demands of managing non-cash collateral such as recalls and corporate actions processing are a key part of the move to maximizing use of a firm's assets.

Having a clear, centralized view of global inventory and exposures is at the fundamental core of performing collateral optimization. The majority of firms in the market should be looking at this as a key goal and an important precursor to optimization.

The diagrams on the following pages show an example of how a consolidated inventory and exposure management solution can simplify some of the complexity of a fragmented system based on multiple siloed pools of collateral. The consolidated model provides clear business efficiencies in sourcing, mobilizing and managing the risk of collateral.

Centralized Models in Collateral Management

A Siloed Model Showing a Product Focused Approach to Collateral Management



Historical system and procedural constraints, in combination with low spreads between forms of collateral, have lead many firms to a fractured collateral management process.

Gains on managing collateral locally to each product and region outweigh the costs to modifying the setup and any gains from a holistic solution.

However, it is extremely difficult to effectively optimize collateral when operating with inventory and exposure silos.

The key foundation steps to optimizing collateral management are collating all of the inventory and exposures together as in the Centralized Model shown on the following page.

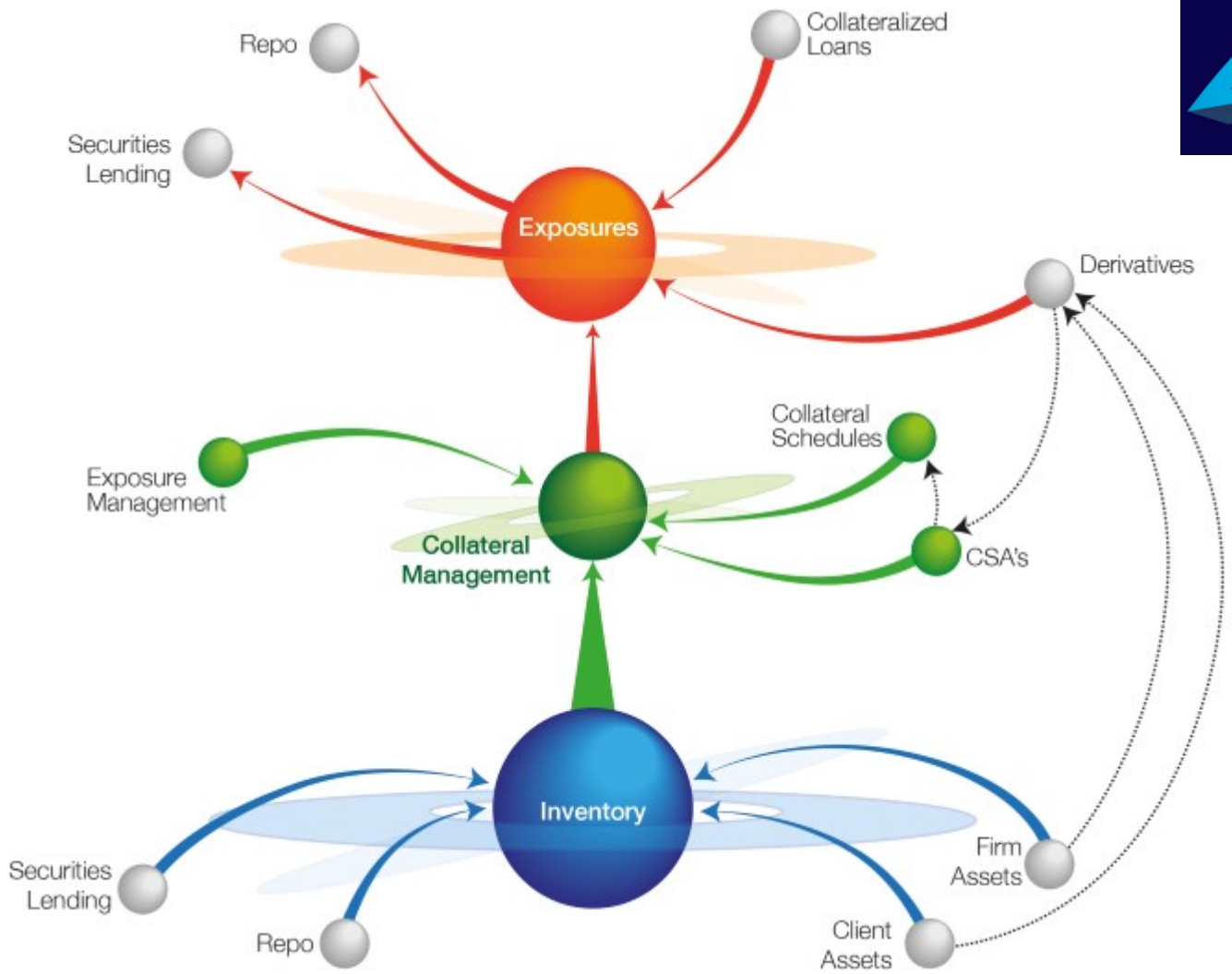
Whilst this doesn't necessarily mean combining all of the trading functions into a single system, it does require aggregating all of the exposure and all of the inventory.

In order to optimize collateral, it is required to know the timings of both aspects, when exposures will be met and likely duration, as well as if the inventory is yet settled and how long it is available for.

In addition, knowing the location of inventory and where it is required to be utilized for exposure covering are also necessary.

Centralized Models in Collateral Management

A Centralized Collateral Management Model Using a Holistic Approach



The diagram above shows a holistic approach to collateral management.

The keystone for this matching process is the collateral management system. This provides the bridge from inventory to exposures, providing links between where and when, and all importantly what the collateral must be.

An ineffective solution here prevents the maximization of inventory efficiency in collateral use. Core to these processes are detailed contractual terms and collateral schedules.

Key Action Points

The list below covers some initial ideas in terms of action points. It looks at where to start when considering the impact of the rules and defining a plan for how to adjust.

1. Determine if your volumes of derivatives trading will exceed the phased compliance thresholds for exchange of initial margin.
2. The daily exchange of variation margin with zero threshold is more imminent than the initial margin rules for firms with low trading volumes. If you are not currently doing this, are you prepared?
3. Start modifying CSAs - ISDA is expected to publish protocols for re-documentation.
4. Decide which model to use for initial margin calculations, for example an internal model or the ISDA SIMM™ model.
5. Analyze operational and settlement risk in terms of missing settlement cut-offs or being unable to cope with increased margin movements.
6. Evaluate how effectively your current technology systems support the new rules. If they don't, what needs to change?
7. Look at ways to automate processes that are currently manual to remove bottlenecks and single points of failure in the collateral lifecycle.
8. Think about what infrastructure and industry utilities you can utilize to reduce the strain on internal operations.
9. If trading globally, then work out and apply rules around trading with counterparties in different jurisdictions. Does this affect optimization decisions around who to trade with and where?
10. Conduct an impact analysis of extra collateral required under the new IM and VM rules. Where will you source this collateral and what will the additional cost be to your business?
11. Evaluate your current pledged collateral against your counterparties' schedules (for example pledged cash). How much could you save if you substituted it for the cheapest to deliver assets your counterparties would accept? Does this saving justify an investment in automated optimization?
12. Consider implementing a global real time inventory management solution in order to meet collateral demand. Visibility of collateral is key to sourcing and moving collateral efficiently in the new operating environment.

Conclusion

The requirement to collect VM and IM on non-cleared derivatives is one of the last major changes imposed on the markets by regulators. But it is also one of the most disruptive. By pushing the exposure out of the banks it makes markets safer, however the shift is now borne by investors.

While there is still some time for many market participants before the regulations begin to take effect, it is important to gain an understanding of how the rules will impact your firm.

This allows you to understand the changes in process flows and business models and then estimate the potential costs of the regulations to your business. With that information in hand one can move on to analyzing the benefits of implementing new processes and technology.

From there, it is possible to clearly outline your required target state. This ensures you have a clear picture of the end goal you want to reach and how your operational and systems architecture will look.

Taking a strategic approach to technology can provide huge benefits compared with a siloed approach involving multiple tactical solutions bolted together.

Taking a strategic approach to technology can provide huge benefits compared with a siloed approach involving multiple tactical systems bolted together that end up being expensive.

Implementing new technology can be complex. However, there are immediate benefits to making the required improvements in collateral management systems.

These benefits will only increase as the rules come in and moving now allows you to avoid a rush to comply when expertise is at a premium.

For further information on 4sight's collateral technology solutions please contact us:

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About 4sight Financial Software

4sight Financial Software is an independent software solutions provider founded in 2003 with offices and clients worldwide. 4sight's customer base includes a full spectrum of buyside and sellside market participants, from smaller banks, asset managers, buy side firms and custodians through to global broker dealers.

Clients in sixteen countries on four continents use 4sight's software to meet their business needs and 4sight offers the reliability and experience of a company with a proven track-record.

The 4sight Collateral Management system provides an enterprise-wide, cross-product collateral management and optimization solution for securities lending, repo, OTC/exchange-traded derivatives and CCP collateral. 4sight's product range also includes solutions for settlement and market connectivity.

In addition to software development, 4sight provides project management, consultancy services and customer support through its global network of offices.

For further details, please visit: www.4sight.com

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