Why firms should embrace collateral management transformation

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Executive summary

The recent market stress, driven by the COVID-19 pandemic, has highlighted the importance of developing and maintaining a cutting-edge collateral management capability, as it is essential to effective monitoring and managing of credit risk exposure, identifying counterparty stress and enabling optimization of collateral inventories during periods of high market volatility. While financial institutions have shown noteworthy resilience, the recent heightened market volatility and margin call volumes observed due to the COVID-19 pandemic have exposed a significant number of vulnerabilities in the collateral management operations, technology and data infrastructure of institutions of all sizes on both the buy side and sell side.

The current headwinds have also impacted the rollout of new regulations. The Uncleared Margin Rules (UMR), which materially impact initial and variation margin requirements, have seen a proposed one-year delay for achieving compliance for the remaining phases 5 and 6, enabling financial institutions to focus on maintaining business continuity and effectively managing risk. This delay provides firms with an opportunity to strategically assess their options for achieving regulatory compliance and their broader collateral management needs.

To address the vulnerabilities discussed in this article, firms should assess their end-to-end collateral operating model across people, process, technology and data. Firms should consider their ability to achieve appropriate economies of scale and competitive advantage via their existing collateral management infrastructure and by leveraging automation and innovation techniques. Where firms cannot achieve appropriate cost benefits from upgrading and automating existing capabilities, they should assess the opportunity to outsource their collateral management functions. We expect that for many firms, particularly buy-side firms, outsourcing will present an effective risk mitigating and cost-effective solution.

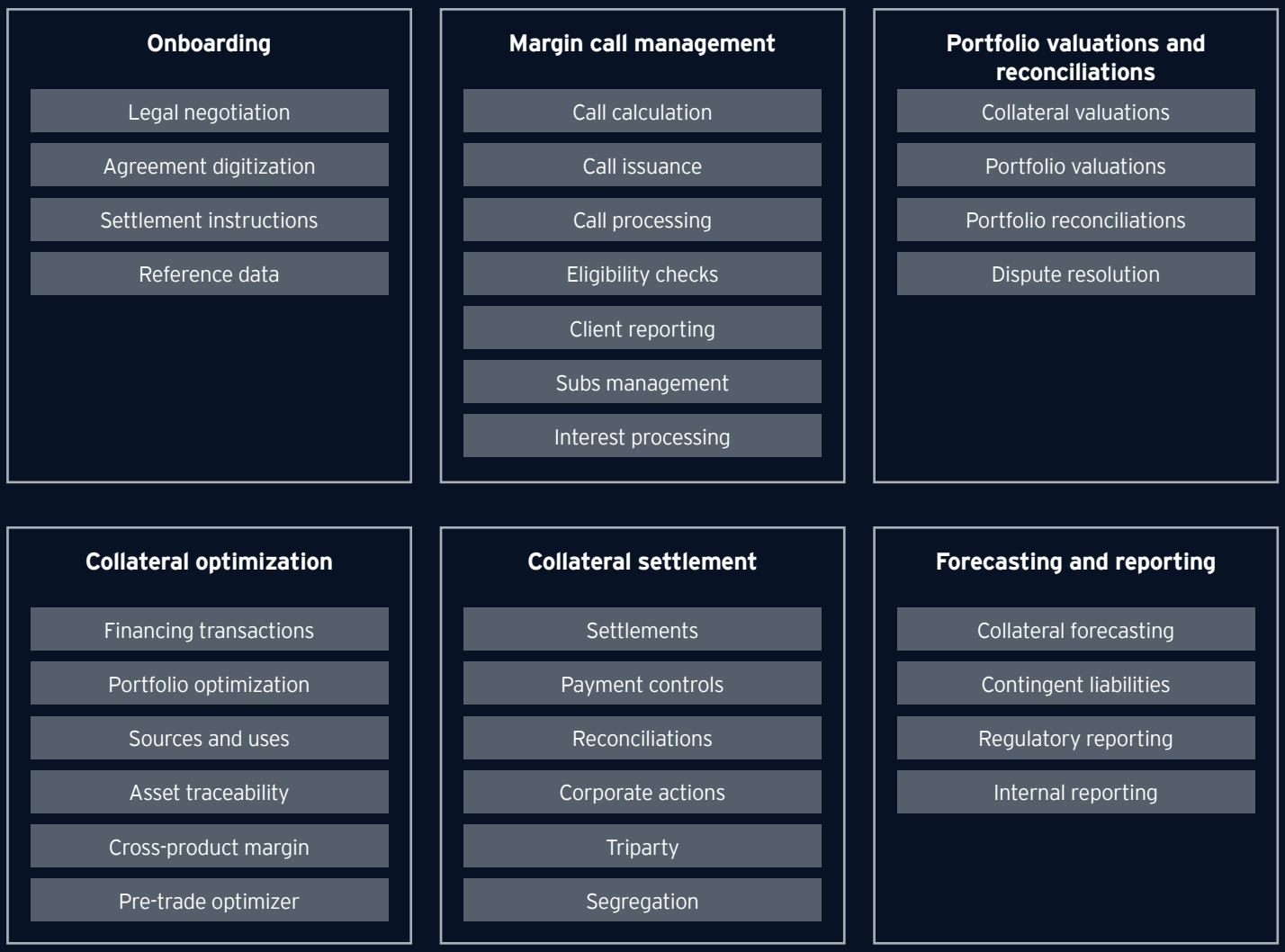

6x
average margin call volumes across products
10x
investigable margin disputes
Manual generation of management reporting at increased frequency

Collateral challenges highlighted by the COVID-19 pandemic

The current market environment has driven a significant increase in volatility, resulting in volume spikes in secured funding transactions, collateral substitutions and margin calls across the industry. These dynamics have been compounded by downward pressure in asset valuations, forcing firms to adjust their funding and leverage strategies. Firms with fragmented collateral management infrastructure, and reliance on manual processes, have lacked the ability to effectively analyze, forecast, and manage their collateral inventory and obligations, resulting in missed margin calls and suboptimal collateral allocations.

For many firms, collateral management processes lack automation and require continuous, inefficient and error-prone manual intervention across the transaction life cycle. The volatile market conditions have exposed the operational limitations and financial risks of relying on such a fragmented infrastructure. In margin management operations, the volatility and volume have highlighted inefficiencies in data feed latency, margin call processing, fragmented product-specific infrastructure, asset valuations, portfolio recon ciliations and dispute management, and exposed governance challenges with stale client reference data and manual management and risk reporting.

Figure 1: Collateral management life cycle



Limited collateral analytics and optimization capability. Increases in demand for collateral, coupled with downward pressure on asset valuations, have highlighted the need for robust collateral analytics and optimization capabilities. The fragmentation of collateral infrastructure across products and reliance on manual processes has exposed the lack of timely enterprise-wide transparency required to effectively manage collateral inventory and forecast obligations.

The need for robust collateral analytics and optimization tools was further emphasized when firms rapidly altered their leverage and funding strategies, liquidating assets to cover redemptions and manage against leverage limits. Increases in collateral demand, combined with limited insight into inventory, forced firms to allocate available, as opposed to optimal, assets to meet obligations. The use of automated collateral analytics and optimization tools could have otherwise significantly reduced funding costs and processing time during this period.

Figure 2: Collateral management product scope

Margining activities							Financing activities			
OTC uncleared derivatives	Futures	Listed options	Cleared swaps	Mortgage forwards	Prime broker	FMU custodial buffers	Repo (bilateral and triparty)	Securities lending	Bank leverage loans	Securitized loans

Spike in margin call volumes. Firms have reported experiencing up to a sixfold increase in margin calls across all products in a concentrated period, creating pressure points on operations that heavily rely on manual processes that limit scalability, increase control risks, and the likelihood of operational errors and processing delays. For example, the majority of margin calls continue to be issued via email and not through more efficient industry utilities. This has created capacity pressure and, for some firms, led to missed margin calls and avoidable increases in counterparty credit risk exposure.

Many institutions that do have collateral management systems tend to have fragmented infrastructure across products, increasing the difficulty to consolidate data for management and risk reporting, monitor stressed counterparty watch lists and provide intraday updates.

Incomplete, stale reference data. Recent market volatility has also triggered increased margin activity in previously dormant or inactive accounts, causing breaches in margin thresholds or minimum transfer amounts. This has exposed gaps with firms' collateral account and agreement reference data, including eligibility schedules, settlement instructions and contact information. The lack of consistent, accurate and complete data sets requires additional downstream investigation by collateral operations teams, delaying or reducing capacity to process all margin calls.

Position valuation complexities. The increased market volatility introduced challenges in achieving accurate and timely asset valuations, specifically for complex derivatives, financing and structured product businesses. Collateral teams generally rely on the trader marks to value the positions, combined with a monthly independent price review process. In many instances, recent market turmoil negatively impacted front office capacity to value positions and obligations in a timely manner, resulting in delayed delivery of complete transaction data feeds, valuations and initial margin requirements to collateral operations teams for processing. Such delays caused downstream disruptions in margin call processing, compressed timelines to agree to calls and a spike in the number of margin dispute cases.

Increased settlement fails. With the increased transaction volumes, firms also experienced a significant increase in settlement fails across both cash and securities. While partially explained by stale settlement instructions and communication challenges due to remote working, the transaction volumes exposed bottlenecks in the settlement processes and infrastructure, as many firms still rely on manual wire/settlement approval processes, fax-based communications and manual web portal entries to facilitate settlements.

Firms also lack the ability to systemically monitor for settlement receipt and fails, relying instead on reactive, manual processes. This limited transparency not only increases the operational burdens, but also limits the transparency into the collateral inventory and ability to accurately forecast collateral sources and uses.

Figure 3: Margin dispute drivers

Key dispute drivers	
Variation margin	**Initial margin**
‣ Market value discrepancies ‣ Missing/extra trades/novation incorrectly booked or missed (i.e., trade alleged to wrong entity) ‣ Booking methodology differences ‣ Snap timing discrepancy (i.e., FX rates) ‣ Cash flow differences (i.e., settlement/premium discrepancy) ‣ Treatment of in-transit or failed collateral ‣ Trade book not priced ‣ Missing collateral movements ‣ Collateral haircut discrepancy ‣ CSA term discrepancy	‣ Sensitivity population ‣ Sensitivity bucketing ‣ Missing/extra trades/novation incorrectly booked or missed (i.e., trade alleged to wrong entity) ‣ IA percentage discrepancy ‣ CSA term discrepancy

The challenges observed through the pandemic across the collateral life cycle are not new but were exposed by the perfect storm of market volatility, margin call volume increases and asset value fluctuation in a concentrated time frame. It is important for firms to understand these challenges in relation to their existing end-to-end collateral operating model, taking lessons learned to identify transformation opportunities to enhance analytical capabilities and improve operational efficiency through process automation, system consolidation and enhancement.

For many firms, this may require an evaluation of their end-to-end collateral management technology stack to identify and consider where platform upgrades or consolidation could accelerate achievement of desired collateral management capabilities. For others, consideration of the cost-benefit opportunities offered by outsourcing collateral management functions may serve as a more cost-effective solution.

Spike in margin disputes and portfolio reconciliation breaks. Due to differences in asset valuation methodologies and process across counterparties, along with the prolonged market volatility, firms observed a spike in both volume and value of margin disputes, with some firms reporting a tenfold increase in the number of high-value disputes requiring same-day investigation.

For most firms, dispute management investigation processes are highly reactive and manual, requiring consistent and timely communication between the counterparty, the trading desk and middle-office teams. Initially, the remote working environment created communication challenges, requiring firms to proactively prioritize investigations and resulting in a backlog of dispute cases.

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Transformation opportunities for collateral management

The challenges experienced in the collateral management function highlight the need to review and improve end-to-end collateral processes, from front-office secured funding and financing activities through middle- and back-office operational margin and settlement functions. The issues experienced during the pandemic demonstrated the importance of collateral analytics, optimization capabilities, and the need for automated operational process and workflow to effectively manage collateral.

Firms should take this opportunity to strategically review their existing operating model and identify the many opportunities for improvement. Firms should invest in their front-office trading and optimization infrastructure and review whether they should invest in further uplifting operational capabilities in-house or outsource these functions to an asset service provider.

There is not a one-size-fits-all model to improve collateral management capabilities, and we encourage firms to strategically assess their options in context of their existing infrastructure, process scalability, resiliency and business objectives. Significant control, cost and financial resource efficiency has been observed through investment in front-to-back collateral transformation programs.

1.

REVIEW YOUR OPERATIONAL OPERATING MODEL

With the vulnerabilities exposed through the volume and volatility of the market through the pandemic, and the upcoming increase in counterparties subject to the UMR rules, now is the time for firms to review their collateral operating model. For most firms, it has been nearly a decade since they reviewed their broad capabilities and operating model.

Today, there are several options available to firms to enhance their capabilities and futureproof their collateral management capabilities. Organizations can leverage the enhanced technology vendor platforms, utilize disruptor technologies that have recently entered the collateral management ecosystem or take advantage of the rise of capabilities offered by asset service providers.

Regardless of being on the sell side or buy side, we have identified several leading practice operating model principles that all collateral management operations groups should enact in defining their target operating model:

- Consolidate enterprise-wide collateral inventory and optimization analytics
- Implement single-product-agnostic margin call management workflow
- Maximize the use of collateral ecosystem utilities to drive automation
- Implement a proactive approach to identification and resolution of margin call disputes
- Independently calculate and validate initial margin requirements (UMR, central counterparty clearing house, prime broker, independent amount, etc.)
- Automate collateral settlement monitoring process to proactively identify settlement fails
- Integrate and automate generation of stakeholder analytics and reporting into workflow
- Enable infrastructure to support intraday margin call processing

> For firms focused on connecting the front-to-back infrastructure, there are solutions that can serve front-office, trading and optimization, and operational needs.

Figure 4: Collateral management operating model options

Front office analytics and optimization	In-house analytics and optimization infrastructure with in-house trading team Largest dealers with existing base capabilities	External vendor technology solution with in-house trading team Dealers and largest buy-side firms with multi-asset-class diverse portfolio	Asset servicer technology solution as part of broader relationship with in-house trading team Buy-side firms looking to close targeted capability gaps	Outsource to asset servicing/agency financing business providing optimization, agency financing and collateral transformation, and triparty service Buy-side firms with limited current capability or scale for in-house ROI

In-house/captive ← Operating model → Outsource

Margin operations	In-house operations team and internally developed core margin operations system Limited to largest dealers with legacy in-house-built capabilities	In-house operations team leveraging external vendor technology platform Dealers and select large buy-side firms	Full outsourcing of operations and technology needs associated with margin to asset servicing provider Regional dealers and buy-side firms of all sizes

1.1

SELL-SIDE OPERATING MODEL CONSIDERATIONS

For the sell side, many firms' infrastructure and supporting teams continue to be siloed by product, limiting the ability to achieve economies of scale, consolidate timely counterparty exposure reporting and effectively implement watch list processes. We have observed how fragmented operating models supported by end-user computing solutions limit firms' abilities to create a true exception-based process and inhibit firms from maximizing the use of the industry utilities across product.

It is critical that sell-side firms develop a product-agnostic, exception-based management workflow solution to maximize efficiency globally. For the largest sell-side firms, an integrated collateral infrastructure will likely be achieved by a technology solution, either in-house or through one of the industrialized technology providers of enterprise collateral management solutions. It has been observed that there are several automation opportunities across the collateral life cycle that can be leveraged to augment existing processes and overcome existing inefficiencies, which can lead to a lower investment to realize a significant efficiency for the largest dealer firms.

For the medium-sized and smaller dealer community, the option of leveraging an outsource solution from an asset servicer should be seriously considered and weighed against the operating cost of a technology platform and a captive team. We believe as the asset servicers achieve greater scale there is likely to be a compelling business case for some of the sell side to further explore this option. Firms should ensure that there is clear integration between their front-office optimization needs and supporting operational infrastructure when determining the appropriate operating model.

1.2

BUY-SIDE OPERATING MODEL CONSIDERATIONS

Most of the buy-side firms' collateral management capabilities are highly fragmented and manual. There has been a lack of investment in infrastructure with many firms continuing to rely on spreadsheets to support their collateral processes. With the regulatory environment shifting with UMR due to take effect over the next two years, a spreadsheet-based process will no longer be viable to handle the added complexity or increased volume. The operational risk of relying on manual processes was exposed through the pandemic with the spike in volumes leading to missed calls, fails and lack of transparency into the status of settled collateral and margin calls.

There is a significant opportunity to drive efficiency through implementation of collateral management infrastructure that meets industry standards. Firms need to consider whether they should invest in buying the technology and upskilling the captive teams to support the evolution of the industry or whether they should look to asset servicing outsourcers to meet this need. There is a compelling argument for both approaches, and firms should consider how integrated their infrastructure can and needs to be from the front office to operations.

For firms focused on connecting the front-to-back infrastructure, there are solutions that can serve front-office, trading and optimization, and operational needs. For firms that adopt this integrated approach, there is a compelling argument for buying a consolidated and comprehensive technology solution. However, for most firms that are solely looking for collateral operations capabilities, there is a compelling economic and control opportunity for outsourcing collateral services to asset servicers, with many servicers also providing front-office solutions such as analytics and optimization capabilities as part of the package.

When reviewing the operating model, firms should look to develop a detailed business case that considers more than just the cost components of each model. Firms should also consider the need to future proof the capabilities and the likely investment in continual upgrades and improvements, the regulatory outlook, the product mix covered, the benefits of internal control, risk management factors, the ability to connect to the broader collateral ecosystem and the counterparty experience that each model delivers.

2.

COLLATERAL ANALYTICS AND OPTIMIZATION

When considering operating model transformation opportunities, firms should emphasize the development of transparency and analytical capabilities to enhance collateral optimization. Firms can build a foundation for broader analytics by developing a cross-product, real-time view of their available enterprise inventory, obligations and eligibility. Intraday analytics help collateral and funding managers identify opportunities, but also provide insight into new obligations as the market moves. Such analytics can be leveraged to drive proactive counterparty credit risk monitoring in support of watch list and default management protocols.

More advanced firms should consider developing a comprehensive collateral optimization toolkit to assist in optimizing both the obligation and the collateral pledge across funding activities (bilateral and repo) and margin needs (derivatives, initial margin, etc.). Collateral optimization can help firms minimize obligations by routing trades to counterparties and markets where efficiency can be achieved. On the pledge side, the tools can identify the optimal assets to meet collateral requirements based on built-in constraints, including available inventory, eligibility and obligation type.

The development of an optimization engine can enable real-time automated solutions that eliminate the human element in the decision-making, driving significant operational and financial resource efficiency. During times of market volatility and stress, the solutions can further assist in managing inventory and obligations effectively.

Firms should consider their build, buy and outsource options in relation to optimization capabilities and supporting infrastructure. Building optimization capabilities requires significant investments for integration of front-to-back infrastructure across products, data connectivity and automated algorithms. Sell-side firms with mature and complex technology stacks should consider in-house build efforts required against the capabilities and costs of a vendor solution to support optimization. For buy-side firms that may lack comprehensive infrastructure, a choice between technology vendors and outsourcing to an asset service provider presents compelling options to drive significant efficiency in the use of collateral.

3.

INCREASE THROUGHPUT OF INDUSTRY UTILITIES

As part of a strategic collateral management transformation, institutions should maximize usage of established industry utilities. The migration to a systemic solution will help reduce manual processes, however, leveraging collateral industry utilities will enable significant cost and time efficiency. The utilities will need to upgrade their functionality to industrialize the support of non-over-the-counter (OTC) bilateral derivatives and become product agnostic.

- Vendors such as AcadiaSoft and triResolve increasing the volume of non-OTC bilateral derivative margin calls through the services will provide significant benefit across the buy and sell sides, although full realization of the benefits will require support across the industry.
- Triparty adoption for collateral movements and segregation across a broader product set and a wider adoption of the ability to re-hypothecate triparty assets will drive greater optimization efficiency and enhance asset mobility.
- Connecting financing and segregation services solutions are evolving to automate the optimization and collateral upgrade/downgrade capabilities that will drive industry efficiency and likely commoditize optimization solutions. We also expect to see an increasing adoption of sponsored, agency and peer-to-peer market financing services improving market liquidity and collateral mobilization.
- Trade affirmation platforms will enable trade confirmation and affirmation at point of trade to ensure matching of transaction data supporting the minimization of trade disputes.
- Valuation services have an increasing presence to provide services as an independent valuation agent for transactions, further reducing the risk of valuation-driven disputes and eliminating a complex and time-sensitive internal process.

4.

ENABLE PROACTIVE DISPUTE MANAGEMENT

Margin disputes spiked across the street through the pandemic. The disputes were driven due to missing transactions, valuation differences and collateral balance issues. Firms need to focus on resolving upstream data challenges to enhance the resiliency and efficiency of the collateral management process. Opportunities for enhancement that should be considered include the following:

- Digitize block trade allocation processes and leverage artificial intelligence for proactive validation
- Digitize confirmation and affirmation process workflow to automatically capture attributes systemically
- Review data strategy and critical path feed timing to ensure timeliness of data feeds
- Review valuation approach and automate where possible through data services to remove reliance and delay from manual front-office pricing
- Digitize margin agreements to ensure data attributes are accurately captured and systemically reviewed

Firms that can address their upstream data challenges should then look to move to proactive and systemic dispute identification and resolution, moving away from the current highly reactive processes. Firms can leverage the emerging automation technologies to automate the dispute process. Proactive identification looks for historical patterns and previous day disputes prior to margin call issuances. Benefits of proactive identification include the ability to prioritize investigations by systemically removing false positive and reoccurring disputes in order to prioritize high-risk issues and other higher-value tasks.

5.

AUTOMATED SETTLEMENT FUNCTIONALITY AND INFRASTRUCTURE CONNECTIVITY

Firms, specifically on the buy side, continue to rely on manually entered payment and settlement instructions and settlement monitoring. This presents challenges in delivering operational efficiency, optimization capabilities and effective risk management. When firms consider their operating model, ensuring an end-to-end approach is adopted will require them to consider the scalability of their settlement processes. Specific opportunities that firms need to address include the following:

- Develop connectivity with settlement infrastructure leveraging SWIFT or SWIFT-like messaging and supporting workflow to eliminate manual paper-based wire processes, enhancing resiliency and control
- Establish an automated and predictive fails process to monitor inbound and outbound settlements for potential challenges and fails to move to a proactive T0 control from a reactive T+1 or longer reconciliation

For each firm, the operating model that best suits its needs is available. With advancing innovation, the number of providers in the market and increasing complexity of the process, it can be challenging to find the best fit. A pragmatic and rapid business case and target operating model analysis is a must as firms future proof their organization to learn from the pandemic and meet regulatory expectations.

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A final word

The unprecedented volumes and market volatility resulting from the COVID-19 pandemic have exposed process gaps and inefficiencies across the collateral management life cycle. Although many of these challenges were known, the issues were exacerbated and the need to remediate more prevalently exposed.

As firms assess their capabilities and review their target operating model to decide on a build/buy/outsource model or optimize through automation, it is imperative that they consider the front-to-back collateral management life cycle, from the front-office needs related to analytics and optimization to the operational needs for process standardization, efficiency and control.

The increasing complexity of the operating model options and the need to drive operational and financial resource efficiency make the definition of the business case and design of the target operating model a complex task. It is our hypothesis that as firms review their operating model and look to the future design, there will be an increase in the adoption of services provided by asset servicing firms, especially for the buy side, with the services value chain provided by the asset servicers moving upstream to meet and enable front-office needs.

We encourage firms to leverage the vulnerabilities exposed by the pandemic, the upcoming regulatory reform that will increase volume and complexity, and the need to drive financial resource efficiency to perform a holistic and thorough review of end-to-end collateral management capabilities and design a target operating model that meets their evolving future needs.

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