Reimagining the first line of defense’s role in bank regulatory compliance
Digitizing processes and controls to drive profitability and efficiency
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For nearly a decade, large global banks have been scrambling to achieve compliance with a myriad of post-crisis regulations and supervisory guidance. This has made it difficult to strategically prioritize and implement sustainable solutions that could embed these requirements into the first line of defense’s operating model in a efficient and strategic fashion. Given competing priorities, relatively short time frames, increased regulatory expectations, and limited resources, a tactical and often reactive focus was both understandable and required.

But post-crisis momentum has resulted in heightened expectations from regulators, customers, and shareholders. Stakeholders are also demanding that large global banks enhance profitability while preserving and optimizing capital deployment. In recognition of this challenge, the Financial Stability Board’s most recent annual report on the implementation and effects of global financial regulatory reform observes that “bank business models and structures are still undergoing adjustments in search of more sustainable profitability.”

The future of global bank business models remains uncertain due to changing and fragmented regulatory expectations and a lack of harmonized definitions of key concepts. Banking groups must navigate this current uncertainty while focusing on ensuring efficient, well governed business models that support sustainably profitable business lines.

The importance of the front office in the broader control framework was recently reinforced by the Federal Reserve Board (FRB), which issued proposed guidance on January 4, 2018 outlining supervisory expectations for senior management, business line management, and independent risk management and controls in the form of principles. For the front office, the FRB stresses the need to execute activities consistent with the firm’s strategy and risk tolerance, identify and manage risk within the business line, provide sufficient resources and infrastructure to the business line, ensure the business line has an appropriate system of internal control, and ensure accountability for operating within established policies and guidance and in accordance with laws and regulations.

In this environment for large global banks (including those with significant trading and investment banking activities), we expect the bar to continue to be raised with respect to fully integrated detective controls able to demonstrate progress on implementing preventative controls. There remains a focus on conduct, authorization, and demonstrating end-to-end control of sales, trading, investment banking and client-facing activities. There is general sense among the industry that, due to technology and automation improvements, and the sheer size of the largest global banks, some of these improvements should start to take shape. By embracing regulatory complexity, banks can lead in their industry and better navigate uncertainty - now and in the future.

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1 First line of defense refers to the front office (or the bank’s primary revenue-generating functions) and represents the core group of individuals responsible for the prudent day-to-day management of the business line and who report directly to senior management.

Context and current themes
For some time, risk management, finance, and compliance—as well as other second line of defense functions—have often led regulatory response and remediation efforts by mobilizing resources and delivering against significant regulatory change projects and expanded regulatory requirements. This has resulted in mixed results in fully operationalizing the full slate of regulatory requirements for the front office.

Often, the front office isn't fully engaged in the end-to-end design and implementation efforts. This has contributed to certain disconnects and inefficiencies in the technology architecture and operating models across the first and second lines of defense. In turn, such disconnects frequently lead to overlapping controls, siloed responses, or the inability to explain the control framework across the three lines of defense on an end-to-end basis for regulations that span businesses and functions.

Front office personnel often find themselves spending significant time addressing regulatory issues in a disconnected and manual manner, creating additional inefficiency in achieving strategic business goals. And front-office controls remediation efforts have traditionally been focused on achieving compliance with various regulations. Thus, they frequently result in tactical fixes, leading to both redundancies and disparate controls—and to a current state in which many global financial services organizations are plagued with:

• **Unsustainable control frameworks.** Many post-crisis control frameworks are inefficient, unsustainable, and require rationalization because they’re reflective of incremental and bolt-on solutions that may have been implemented quickly. Migration from implementing tactical fixes and toward developing a comprehensive control framework strategy may improve efficiency and effectiveness when addressing various regulatory and management expectations.

• **Overreliance on the second line of defense.** In many cases, the second line of defense hasn't been effective in fully addressing regulatory expectations and implementing preventive control protocols. This is because it isn't as close to the business strategy, products, processes, and controls. Focusing on improving the controls ownership within the front office will reduce and realign some tactical compensating controls in the second line of defense.

The first line of defense increase in responsibility leads to second line of defense rationalization, permitting the second line to refocus its skills and attention on enhancing monitoring capabilities within the organization.

• **Disparate and siloed controls.** Many front-office controls serve only one purpose (a specific regulation or process) and often don’t utilize the same reference data and hierarchies. This can result in controls that sometimes contradict one another or that don’t fulfill their true end-to-end potential. Multiple levers need to be pulled to streamline controls, such as reviewing and modifying front-office operating model(s) to realign controls to the business’s operating foundation, including reviewing how controls work across the three lines of defense. This eliminates redundancy, creates complimentary solutions, and is achieved through prioritized action plan development and implementation.

• **Regulatory divergence, uncertain global regulatory environment, and increased pressure.** A high degree of uncertainty remains in the global and individual jurisdiction regulatory environment, and the pressure to advance an integrated and rationalized control framework has intensified. While this may not be a period of expanding and new regulatory requirements, heightened supervisory expectations and new regulatory criticism—especially with respect to enterprise-wide risks and issues, such as cyber, conduct, third-party risk, data quality, and anti-money laundering (AML), among others—have increased the level of overall scrutiny and effort required by firms to address regulators’ expectations. This leads to a desire to establish programs that address regulatory requirements more efficiently and to making greater investments in technology and automation. Institutions are investing in the digitization of controls and processes, robotics, cognitive intelligence, and analytics programs for an increased—and more mature—second line of defense focus on data, information, and reporting to manage compliance and mitigate operational risk.
• **Talent retention challenges, due to highly manual processes.** Highly manual processes that have been disintermediated by nearshoring, offshoring, and outsourcing, as well as often mundane control execution and monitoring processes, create staff retention challenges. Retaining qualified staff and talent requires ongoing leadership dedication to create career paths that both meet resource expectations and permit the organization to advance its business strategy and control framework agenda. As a result, organizations are placing a significant focus on operational transformation where they’re reevaluating target operating models, reviewing the talent and skills of their people, and considering increased central servicing and managed services models in pursuit of efficiency and cost rationalization. All these efforts should be end-to-end where necessary.

As a result, the time has come for the front office to strategically design and invest in a more comprehensive approach to respond to, manage, and deliver against an expanded regulatory, business, and control agenda. In a period in which we expect a continued uneven and divergent playing field across regulatory supervisory approaches globally and within and among jurisdictions, demonstrating a strong control environment will be critical.

Our view is that there has been too much reliance on the second line of defense in responding to various regulatory requests. As a result, the front office often doesn’t have a comprehensive view of the foundation (controls and processes necessary to achieve management and regulatory objectives). This has also challenged the second line of defense in meeting its core expectations and requirements. Better alignment between the first and second lines would also allow the second line to focus on higher-value activities.

Front-office leadership is required to:
- Initiate strategic business organizational reviews
- Refine, rationalize, and expand its role and influence within the process and control framework
- Assess opportunities where enhanced use of automation would lead to cost reductions and improved control environments
- Plan and hold the organization accountable to deliver well-coordinated strategic change initiatives that will lead to stronger economic benefits and position the organization to succeed
- Establish control groups within the front office as necessary
The foundation:
A macro trend in the industry is an increased focus on and interest in automation and digitization of processes and controls, along with investments in cognitive technologies and analytics to enhance data analysis capabilities and reporting. This paper, therefore, seeks to provide greater transparency into available tools and technology and potential use cases for consideration.

But before one can start to strategize about automation, the foundation of the processes and controls must be well-understood. The business operating model must be enhanced and realigned to support strategic organizational vision and priorities, instead of the laboring tactical fixes, and prioritize a business-led approach with support and participation from all control functions. Lessons may then be aggregated at both the functional and cross-functional levels.

Given the complexity and multidisciplinary nature of implementing a sustainable control framework across various business lines, we would recommend ensuring that a detailed understanding of the current state of how existing controls and processes exists before embarking on this journey.

We recommend first focusing on three fundamental pillars:

**Figure 1: First line of defense framework**

<table>
<thead>
<tr>
<th>Pillar 1: Business operating model</th>
<th>Pillar 2: Business processes &amp; controls</th>
<th>Pillar 3: Continuous improvement &amp; sustainability</th>
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</thead>
<tbody>
<tr>
<td><strong>Key components</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Structure (clients, legal entities, channels, and products)</td>
<td>• Conduct</td>
<td>• Stakeholder priorities &amp; empowerment</td>
</tr>
<tr>
<td>• Drivers (priorities &amp; risk appetite)</td>
<td>• Financial management</td>
<td>• Booking model / customer needs</td>
</tr>
<tr>
<td>• Governance (board, management committee, and individual functions)</td>
<td>• Risk management</td>
<td>• External influences: regulatory change</td>
</tr>
<tr>
<td>• Resourcing levels &amp; accountabilities</td>
<td>• Transaction capture &amp; execution</td>
<td>• Automation &amp; infrastructure</td>
</tr>
<tr>
<td>• 1st and 2nd LOD division of responsibilities</td>
<td>• Data governance</td>
<td>• Segregation of duties</td>
</tr>
<tr>
<td><strong>Services we offer</strong></td>
<td></td>
<td></td>
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<tr>
<td>• Operating model review</td>
<td>• Capability assessment</td>
<td>• Continuity analysis</td>
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<tr>
<td>• Defined playbook</td>
<td>• Automation review</td>
<td>• Measurement &amp; prioritization implementation</td>
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<tr>
<td><strong>Objectives</strong></td>
<td></td>
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<tr>
<td>Enhanced control</td>
<td>Efficiency</td>
<td>Effectiveness &amp; transparency</td>
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</tbody>
</table>
1. Business operating model

- Define business drivers, priorities, and objectives aligned with organizational strategic vision and priorities.
- Review the business organization against the priorities of clients, products, regions, and legal entities.
- Align the business operating model to fully support client, product, and service needs.
- Aggregate product teams into optimal business constructs (delayering).
- Rationalize support structure and requirements (business management and supporting responsibilities), centralizing where possible (balancing regulatory and governance expectations).
- Leverage new delivery models—global centers of excellence, managed risk services, industry utilities in targeted areas, digitalized services, and tool sets.
- Define the controls governance framework and eliminate redundancies.
- Document the road map, including target state and key priorities.

2. Business controls and processes

- Outline priorities and control objectives for the control framework, including KPIs and metrics to measure efficiency and effectiveness of controls (e.g., preventive over detective controls, automated versus manual controls, anticipatory rather than backward-looking processes, etc.).
- Document required capabilities, processes, and technology enhancements to address management and regulatory needs.
- Design a front-office control structure (1.0 LOD and 1.5 LOD) and migrate controls upstream where possible (considering technology architecture).
- Link the front-office control structure to both 2.0 and 3.0 lines of defense to ensure integration and cohesiveness across the control framework. Eliminate or rationalize controls based on prioritized top risks (for the process), prioritized regulatory requirements, and risk appetite. Recast controls to eliminate redundancies, gaps, and other control framework responsibilities.
- Prioritize activities to implement future control framework and processes.

3. Continuous improvement and sustainability

- Establish ongoing measurement and monitoring routines for the efficiency and effectiveness of business processes and controls.
- Develop processes to monitor internal and external change drivers (e.g., regulatory expectations, competitive landscape, new products, and business operations).
- Develop a vision and make an inventory of identified enablement opportunities for technology/automation; then execute against this plan.
- Establish culture to identify and evolve control framework improvement to address internal and external drivers, as well insights from ongoing monitoring routines.
Building a foundation for investment in technology and automation of processes and controls

As the first in a series of papers on the topic, we begin with how technology can provide a mechanism to accelerate reaching foundational capabilities. This should provide some additional tools and thoughts to provoke what can be achieved as further modernization capabilities are developed. In particular, evaluation of how the technology and architecture supports and enables the front office to meet its various capabilities and expectations is necessary. Technology and automation developments have provided an opportunity to further enable and accelerate effective and more efficient control and process designs.

Global banks are taking a much closer look and investing in automation and cognitive technologies. Automation can significantly improve business processes by streamlining existing processes and activities to create greater efficiency and provide employees with time to focus on more strategic areas.

At the moment, robotic process automation (RPA) is most widely used in banking and securities to automate workflow or routine and repeatable tasks. But other methodologies such as business process management (BPM) and business decision management (BDM), when applied with the right tools, can be used to automate highly complex end-to-end business processes. They can also further support real-time decision making and the evaluation of regulatory requirements against complex front-office processes. A use case on how this can be done for regulatory requirements that apply to front-office trading controls is provided later in this document.

When evaluating how to automate processes, there are a variety of tools and technologies available. Each carries certain advantages and disadvantages. The below diagram outlines the various types of technologies that can be considered when automating business processes and the controls framework.

Technologies to consider when automating business processes and the controls framework

<table>
<thead>
<tr>
<th>Controls Smart Automation Framework</th>
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</thead>
<tbody>
<tr>
<td><strong>Foundational business process &amp; decision automation</strong></td>
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<tr>
<td>• Automate foundational business processes</td>
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<tr>
<td>• Automate custom workflow</td>
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<tr>
<td>• Automate preventative and detective controls</td>
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<tr>
<td>• End to End Modeling</td>
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<tr>
<td><strong>Cognitive automation</strong></td>
</tr>
<tr>
<td>• Natural language recognition and processing</td>
</tr>
<tr>
<td>• Pattern recognition within unstructured data</td>
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<tr>
<td>• Replication of judgment based tasks</td>
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<tr>
<td>• Advanced learning capabilities to self improve</td>
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<tr>
<td><strong>Robotic process automation</strong></td>
</tr>
<tr>
<td>• Screen scraping data collection</td>
</tr>
<tr>
<td>• Rules based process management</td>
</tr>
<tr>
<td>• Tactical toolset to automate tasks</td>
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<tr>
<td>• Faster step towards efficiency</td>
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<tr>
<td><strong>Artificial intelligence</strong></td>
</tr>
<tr>
<td>• Network aimed to mimic human intelligence</td>
</tr>
<tr>
<td>• Advanced self-learning rules continuously rewritten to improve performance</td>
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</tbody>
</table>
Here are a few insights and perspectives on areas that can help provide accelerated efficiencies:

- BPM is a systematic approach that allows organizations to manage, analyze, optimize, and automate business processes and improve operations performance. By streamlining processes and aligning resources with strategy, workflows can be made more effective, efficient, and capable of adapting to a changing environment. A significant change in this domain has been the advent of a process engine that performs the steps in the process and automatically drives it forward, thus automating highly manual and cumbersome cross-functional processes.

- Advanced BPM tools also allow for what-if simulation of designed processes, making it possible for organizations to identify inefficiencies in their processes, remove bottlenecks, test various scenarios (remove a step, add resources, etc.), and alter the model to achieve the most optimized state. Given the enormous expense of implementing executable workflow, this function allows organizations to begin implementation with the highest degree of certainty.

- Coupling BPM efforts with BDM (hereafter referred to as “BPM/BDM”) also has tangible benefits. There's an increased requirement in the industry to automate high-volume decisions across the enterprise to make quick, precise, and consistent decisions. As organizations are required to rethink their decision-making process for automation, they're struggling with the complexity of current manual processes involved in capturing, articulating, translating, and then managing business logic in IT systems. The BDM approach helps achieve automation and solves for the above complexities.

- Using BDM tools, business users can make decision models that are fairly straightforward to create and easy to amend or enhance in the ever-changing regulatory landscape. The models are a living specification (i.e., they translate into executable code), thus significantly reducing the effort required to create business requirement documents (BRD) and the time taken by technology teams to build and code business rules. Technology teams can focus on implementation and testing while the business is focused on creating models. This not only saves time and effort, but it can lead to huge cost savings as well.

- RPA is another powerful tool that can be used for making rule-based systems that mimic human behavior and automate parts of repeatable processes. The application of RPA reduces human effort and time, helps realize significant reductions in cost, completes tasks with high accuracy, and increases throughput. Because RPA drives existing applications with low integration costs, it provides high potential ROI and has a short payback period. RPA bots enable 100 percent adherence to tasks and can process 24/7.

- Cognitive automation refers to a suite of technologies that are improving their abilities to perform tasks better than humans. For instance, machine learning is finding wide application in fraud detection, natural language processing in litigation, and digitizing the contracts space. Cognitive automation application results in large cost savings and increases in efficiency.

- Artificial intelligence is a broad term, but it applies to building systems that can perform tasks and make decisions which require human intelligence. An effective instance of building an AI system is one where the system needs to learn, adapt, and continuously improve based on the data and inputs.
A use case for front-office trading controls and surveillance

There are several rules and regulations that impact trading or booking model controls (e.g., Volcker, Regulation W, Regulation K, MiFid, conduct, business authorizations, internal business capital allocation, trading controls, and booking model considerations). These regulatory requirements have put an increased burden on the front office. In addition, controls have been largely detective in nature often leading to increased manual intervention and increased effort on trade cancellation and rebooking.

In support of building systematic controls (preventive and smart detective) to support regulatory compliance, this use case illustrates where two of the technologies previously discussed (BDM/BPM and RPA) can be leveraged to automate a typical trading controls process. BDM/BPM can be used to create a centralized rules engine or decision service where transactions are evaluated by the rules engine at the pre-execution stage of the trading life cycle, thus identifying and blocking transactions before they’re committed to the book and records. These technologies can also be used to write trading mandates and hard-wired requirements that dictate where something can be booked (including how much, as well as other parameters that are important to business decision making).

RPA technology can then be leveraged to manage the exception or approval process for transactions that require additional review and intervention to the extent these processes can be standardized. This approach and use of the technology can be applied to any regulation to achieve the following benefits:

- Real-time evaluation of transactions
- Increased preventive controls pre-trade for faster identification and remediation of issues
- Continued focus on smart detective controls (post T+1)
- Low cost of change as business users can update the rules in the decision models with minimal dependency on the technology team
- Faster time to market with a simulation testing capability that has full traceability to reduce effort spent on time-consuming user acceptance testing (UAT)
- Modular design for the addition of new products and regulations to the control framework, after the rule engine has been set up
- Business-friendly rule requirements that minimize ambiguity, reduce documentation burden, and mitigate testing risk
- Reduction in the effort required by second and third lines on monitoring and testing
- Transparency for audit and regulators into the decision-making logic and regulation implementation

Figure 3: Trade flow and example of business decision making
While this use case focuses on trading controls, the concepts and framework within this document can be applied to several business processes—from credit and loan approvals/reviews, mortgage approvals, and know your customer (KYC). Anti-money laundering (AML) compliance to booking model decision making and client/prime brokerage account margining and monitoring.

**How to Get Started**
The front office is responsible for a wide range of processes and controls. Therefore, the first step should be focused on obtaining an enterprise view of the supporting business control framework and system architecture. Areas that should be highlighted in this review include:

- Key regulations and control areas that are driving regulatory findings and issues
- Tactical manual fixes that are creating internal audit and regulatory pressure points and that can be further streamlined
- Product, legal entity, and account hierarchies, to ensure the ability to drive controls end to end across the three lines of defense
- Instances of over-reliance on the second line of defense without understanding the first line’s control processes
- How the business is organized to meet process and control expectations
- How rule engines can be applied to front-office/trading systems versus embedding them in each front-office system
- Financial; risk management; conduct, operational limits, and monitoring capabilities; and business, product, and personnel hierarchy structures to move toward establishing focused front-office business dashboards

The foundation of the three pillars and the approaches to achieving automation that are supported by robust foundational processes can drive efficiency and be a competitive advantage for large financial institutions. Front-office digitization will create efficiency benefits, along with improvements in cost-effective quality, scalability, and resiliency. It can also help mitigate risk and control costs for the enterprise by:

- Expanding implementation of preventive controls and reducing overall reliance on only detective controls
- Establishing and enhancing foundational controls through the elimination of root cause issues that can have an impact on the front-office control agenda
- Streamlining and rationalizing key businesses and control processes
- Enhancing reporting and visual analytics

Senior bank leadership’s support in establishing this agenda is critical and will align three key elements:

- Management’s strategic business organizational plan and enhancements, leading to structural and economic benefits
- Regulatory agency expectations for front-office businesses to take greater ownership of their control framework and their enhanced role
- State-of-the-art automation and process reengineering to deliver organizational and control benefits as the catalyst for achieving economic benefits

The actions to take a step back and accelerate the evolution to a more sustainable and effective control environment should begin now.
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