Regulatory technology (RegTech)

Navigating the right technology to manage the evolving regulatory environment

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Executive summary

The industry has experienced an increase in regulations and reporting requirements, which has resulted in the entrance of various technologies and solutions in the market. In this brief, we will address several technologies in the regulatory reporting space that have brought efficiency to financial institutions, including the following:

- Report automation platforms
- Visual analytics
- Robotics
- Next-generation data architecture
- Business process management

Our focus is on regulatory reporting tools and technologies that support the report production process. Other core technology platforms such as traditional data warehouses and subledgers, although equally as imperative, are not addressed in this brief.

We hope this brief will compel institutions to re-evaluate their existing processes and consider innovative technologies to further operational efficiency in the regulatory reporting process.

RegTech

The rise of regulatory technology

Regulatory technology (RegTech) is empowering organizations with the tools required to drive efficiency and sustainability in their regulatory compliance functions. The rise of RegTech has been driven by an increasingly complex regulatory environment, especially in financial services organizations, which in turn has created the need to find more efficient ways to comply. We can expect that RegTech will provide increased transparency between market participants and regulators, drive standardization and continue to deliver value to shareholders.

What is RegTech?

RegTech is often misunderstood and confused with FinTech. While FinTech refers to the use of technologies and software to provide financial services, RegTech is the use of new technologies to address the increasingly dense data landscape required to meet regulatory compliance challenges.

Regulatory reporting efficiency through RegTech

Since the 2008 financial crisis there has been a flood of regulations impacting the banking industry. Firms did not have time to focus on technology so manual processes were established to address the frequency of new reporting requirements. This resulted in heightened demand for talented resources and related costs to comply. Today there are a multitude of technology options for financial institutions to consider leveraging. Firms now have the ability to step back, evaluate their manual processes and achieve automation in hopes of reducing reporting risk, reducing costs and improving overall efficiency.

Many organizations invest a significant amount of time and money in the compliance space to safeguard against audit, regulatory and reputational risks. RegTech offers these financial institutions the opportunity to enhance their regulatory environment through the implementation of technologies including report automation tools (e.g., AxiomSL's ControllerView, Wolters Kluwer's OneSumX and Vermeg/Lombard's AgileREPORTER), visual analytics, robotic process automation (RPA), next-generation data architecture and business process management (BPM). Although these solutions are distinct, some organizations tend to implement report automation tools as a foundation for reducing manual processes and then explore innovative technologies such as visual analytics, next-generation data architecture, RPA or BPM to achieve further automation, efficiency and transparency.

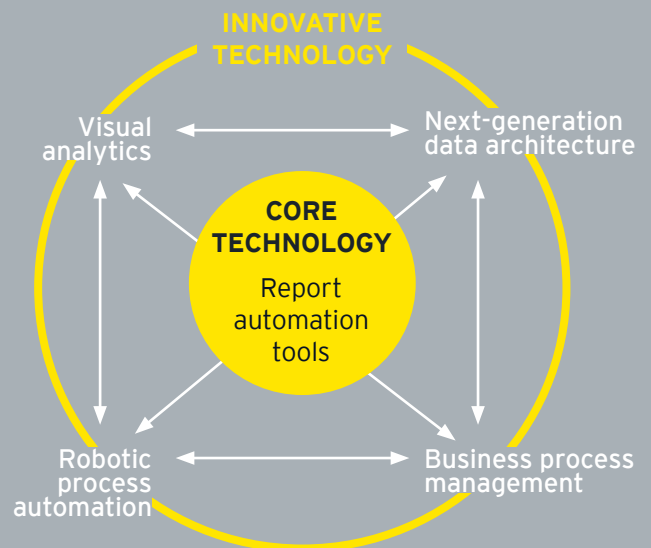**RegTech can be broadly defined as:**

"

... the use of new technologies to solve regulatory and compliance requirements more effectively and efficiently.

~ Institute of International Finance

"

... a subset of FinTech that uses innovative and integrated technology to facilitate the delivery of regulatory requirements more effectively and efficiently than existing capabilities.

~ Financial Conduct Authority

INNOVATIVE TECHNOLOGY

Visual analytics

Next-generation data architecture

CORE TECHNOLOGY Report automation tools

Robotic process automation
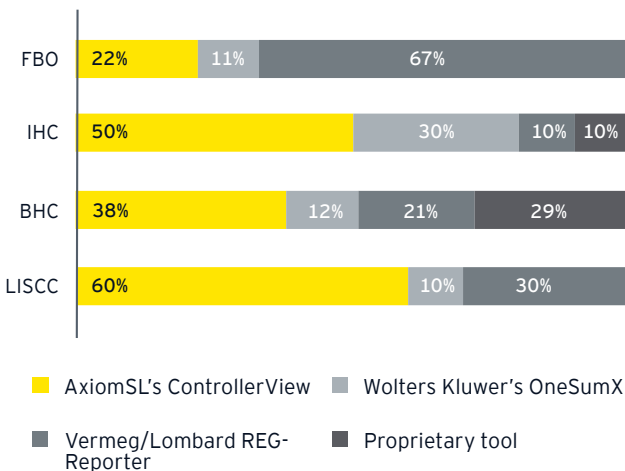
Business process management

Report automation tools

Many banks began implementing report automation tools to minimize reporting errors and improve efficiency. Such tools provide organizations with an automated way of sourcing data, aggregating balances and generating regulatory reports through a user-friendly tool. Based on the Regulatory Reporting Surveys conducted by EY in 2012, 2015 and 2018, banks have shifted from simple report submission tools such as Jack Henry to more robust data aggregation and report generation tools such as Axiom, WKFS and Lombard. Of the 47 Bank Holding Companies (BHCs), Intermediate Holding Companies (IHCs), Foreign Banking Organizations (FBOs) and Large Institution Supervision Coordinating Committee (LISCC) firms surveyed in 2018, 76% of respondents use Axiom, WKFS or Lombard (up from 40% in 2012). Since the financial crisis, EY estimates that at least 35 of the top 50 BHCs and IHCs have implemented a report automation tool for regulatory reporting.

Tools and capabilities

Vendor automation tools offer a diverse set of capabilities from simple report submission and edit check functionalities to more complex data sourcing, aggregation and mapping capabilities. Several niche solutions also exist to support specific processes of the end-to-end reporting cycle, such as risk calculation engines, projection models and workflow management. Several report automation tools also offer efficiency for global organizations by providing a single platform to consolidate and produce regional reports. However, it is worth noting that in certain environments a combination of tools may be the best option in pursuance of end-to-end automation.

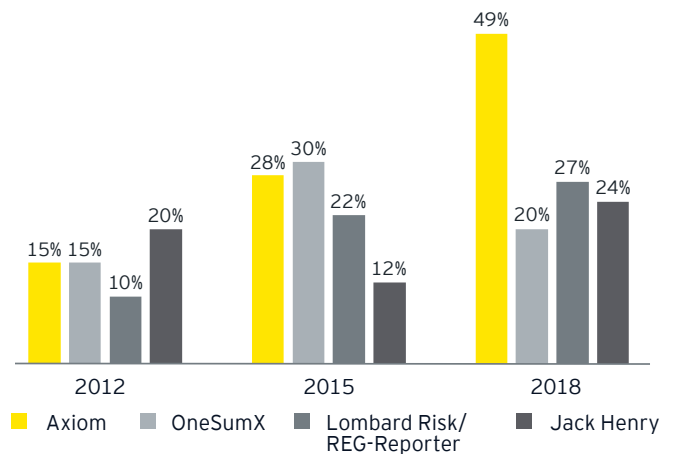**Benefits**

▸ Increased operational efficiency

▸ Improved data quality

▸ Reduction in risk of manual intervention

▸ More time spent on value-add activities

Challenges in getting started

▸ Typical vendor tool implementation effort will take one to two years for strategically automating a majority of the financial regulatory reports.

▸ Dependency on data sourcing initiatives, such as data warehouses and data lakes, are a key reason for organizations to delay report automation activities.

Please specify which third-party vendor software your organization uses to generate regulatory reports

	AxiomSL's ControllerView	Wolters Kluwer's OneSumX	Vermeg/Lombard REG-Reporter	Proprietary tool
FBO	22%	11%	67%	
IHC	50%	30%	10%	10%
BHC	38%	12%	21%	29%
LISCC	60%		10%	30%

Annual trends in third-party vendor software

	Axiom	OneSumX	Lombard Risk/REG-Reporter	Jack Henry
2012	15%	15%	10%	20%
2015	28%	30%	22%	12%
2018	49%	20%	27%	24%

Visual analytics

Changes in the CFO agenda have resulted in the need to produce more analytics to drive data quality, accuracy and accountability in reporting. Newer regulatory requirements such as CFO attestation have created challenges in compiling, analyzing and visualizing data given the depth and range of data within the Finance function. With increased human capital spent on mundane regular tasks instead of analysis, banks are turning to visual analytics tools to derive data-driven business insights.

Tools and capabilities

Visual analytics tools source firm data into an easy-to-digest format for management to have a better understanding of its regulatory reporting operation and financial results. Visual analytics also help drive process improvement by freeing up resources to spend more time on analysis. These tools leverage business rules to measure a range of information across profitability, efficiency, growth, capital and funding (e.g., return on investment, efficiency ratio, revenue growth, Risk Weighted Assets (RWA), Liquidity Coverage Ratio (LCR). Visual analytics tools have the capability to perform trend analysis, sensitivity analysis, scenario analysis, anomaly detection, early warning and predictive modeling across various durations. In addition, dashboards can help to summarize an entire report for senior management discussions. Visual analytics can help find real meaning and insight behind data, justifying the costs incurred from collecting, storing and maintaining data.
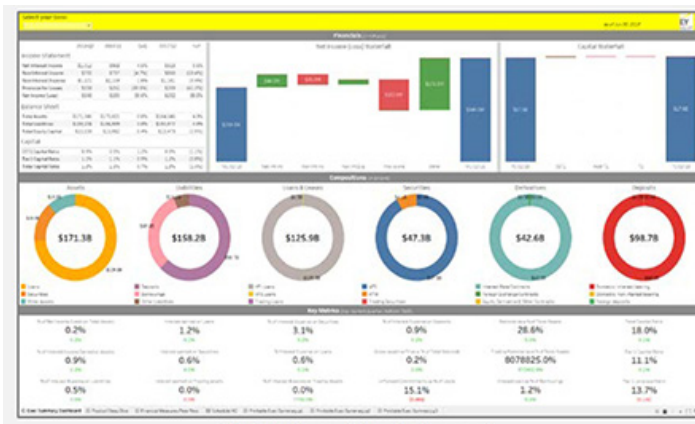
Benefits

- Data quality insights
- Increased automation
- Increased confidence in reporting
- Scalable solution
- Multi-purpose/multi-use (e.g., capital and funding, quality assurance and testing)

Challenges in getting started

- Identifying the right tool and measures to implement in order to meet organization needs
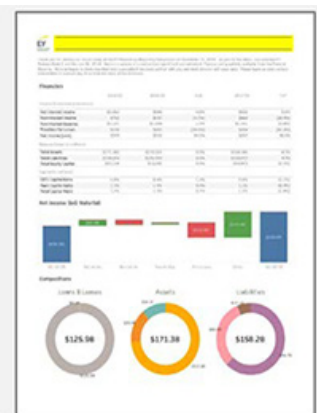
Representative visuals

The standardized reports could be customized to suit management needs. A few examples shown here cover a CFO-level dashboard, an analytical view of a regulatory report and a customized management report.

CFO-level dashboard

Analytical regulatory report

Customized management report

Robotic process automation

RPA uses software to execute business processes in a repetitive, audited and controlled manner. This enables financial services organizations to automate existing high-volume, deterministic, computer-based tasks as if the business users were doing the work. Software-enabled robots work 24/7, sit alongside existing IT infrastructure and are governed by IT and the operations teams. Robotics tools in the RegTech space provide users with the ability to reallocate time to analysis that may have been previously inhibited due to existence of manual processes. The ability to combine other automation technologies such as machine learning and artificial intelligence (AI) with RPA increases efficiencies through the creation of a predominately virtual workforce that is capable of executing tasks, communicating, learning from data sets and even making decisions.

Tools and capabilities

Financial services organizations have begun to leverage robotics in operations and other heavy transaction volume functions in order to perform tasks such as routine regulatory compliance monitoring and testing, identification of breaks and variances based on materiality thresholds, and automation of other manual regulatory reporting processes. Progressive Internal Audit (IA) departments within financial services are exploring opportunities to transition manual, nonjudgmental, repetitive tasks to technology-enabled robots. This transformation will allow IA departments to enhance testing (e.g., population vs. sample-based). Robotics has shifted the practice of monitoring data and processes from being reactive to proactive, allowing organizations to concentrate on issues in real time rather than leaving the firm exposed to risk.

Benefits

‣ Cost reductions through process elimination and automation

‣ Increased efficiency through automation of extensive manual tasks with more precision by using an around-the-clock digital workforce

‣ Speed to market

Challenges in getting started

‣ Identifying processes suitable for robotics is a challenge, given the benefits of robotics are best recognized with processes that are standardized, high volume and contain adequate documentation

Advantages of RPA

Compatibility
Integration with existing systems and infrastructure

Accuracy
Correct calculation, result or decision from the onset

Consistency
Identical processes and tasks, eliminating output variations

Right-shoring
Geographic flexibility promotes enhanced, cost-effective delivery

Retention
Shifts human effort toward more stimulating tasks

Reliability
No sick days, services are provided 365 days a year

Auditability
Fully maintained logs essential for compliance

Productivity
Available human resources for more valuable tasks

Consistency
Identical processes and tasks, eliminating output variations

Next-generation data architecture

Firms are moving toward a streamlined data supply chain model, focusing on data quality and data granularity throughout the end-to-end process. By keeping data integrity through the data supply chain process the end users are able to efficiently meet the granular requirements needed for regulatory reporting, forecasting and enhanced analytics.

In 2018, 75% of firms surveyed reported use of a central data source. This is a marked increase from 2015 (56%) and 2012 (45%). This year, 16% of those firms indicated that regulatory reports are sourced exclusively from a centralized data source while 59% indicated that their central data source is supplemented with additional data from non-centralized data sources.

Tools and capabilities

Next-generation data architecture is a data-lake-based architecture with unified sourcing and consumption, and flexible and iterative data models. It differs from traditional data warehouses that contain numerous hops, rigid data models and manual processes. Through the implementation of data lakes, firms have the capability to consolidate data into a single source across multiple source systems.

Data lakes consisting of a data ingestion layer, conformed layer and analytical layer allow data to be cleansed, mapped, transformed and reconciled at different levels. Source data can be profiled as it is ingested to test data quality and fit for purpose. Data can be harmonized across disparate systems and provide a data aggregation layer for downstream systems to consume. In addition, data lakes provide the ability to quickly ingest more data and scale horizontally.

Benefits

‣ Single platform to consolidate upstream source systems and harmonize data

‣ Ability to quickly ingest data in a controlled environment

‣ Technical and business data quality rules to identify data issues prior to reporting

‣ Flexibility to aggregate records for downstream consumption and drill down into position level

Challenges in getting started

‣ Legacy technology constraints have made it challenging for firms to implement data lakes

Q: Does the Regulatory Reporting Department/ Group primarily rely on a central data source or multiple subsystems?

	2012	2015	2018
Multiple subsystems	55%	44%	25%
Central data source*	45%	56%	75%

🟨 Central data source*   ⬛ Multiple subsystems

*Includes firms using central data sources with other subsystems

Business process management

In the current economic climate, organizations are looking for cost efficiencies in all departments. Business process management provides a systematic approach to making an organization's processes more effective, more efficient and more capable of adapting to an ever-changing environment. BPM is a set of methods, tools, and technologies used to design, enact, analyze and control operational business processes. The BPM market is expected to grow as mobile cloud solutions shape the BPM market.

Tools and capabilities

BPM technology solutions have the capability to design a process, model and simulate the process, build and execute the process, and monitor and optimize the process. BPM tools allow for easy identification of process improvements and early detection of process issues/defects. Existing architectures, data sources and legacy applications can easily be integrated to provide a means of monitoring and improving end-to-end business processes. Key players in the BPM market include IBM, Pegasystems and Appian with all three providing a consistent end-user interface across different suite components, including automated decisioning engines, mobile channels, cloud platforms and simulation engines.

Benefits

‣ Increased process efficiency and productivity

‣ Continuous process improvement

‣ Improved reporting of process performance

Challenges in getting started

‣ Identifying the right technology vendor that is focused on specific competencies required to meet business needs

‣ Selecting the right processes that will give the greatest return to the business

What is the future of RegTech?

The future of RegTech involves more automation, standardization and simplification across organizations and industries.

RegTech will continue to evolve as financial institutions develop new products and services, which in turn carry the potential for new regulations and increased compliance costs. Efforts to reduce these costs in an increasingly regulated industry have driven organizations to look for new and innovative alternatives to existing technological capabilities in order to satisfy their regulatory requirements. Additionally, while RegTech has taken a role in the back-office function, its capabilities and insights can be extended to facilitate front-office functions and strategy definition.

While much of the focus is on adoption of RegTech within the financial industry, many organizations across a number of different industries can potentially leverage these solutions to better drive their business and address regulatory requirements.

What is enabling new regulatory technologies?

Regulatory technology providers have been enabling compliance for a number of years. The next generation of RegTech solutions are addressing the complex needs for a particular compliance capability using solutions that are digital – solutions that focus on the end user; communicate efficiently, nimbly and flexibly; and act, think and behave like humans.

Event-driven Rapidly react to emergent business threats and opportunity processing internal and external events in real time	**Data-driven** Drive business decision based on insights gained through telemetry and real-time analytical models	**Customer-centric** Develop a customer experience-based platform that provides a personalized and differentiated experience	**Cloud, mobile, social** Enable products accessible from the cloud on all devices and integrate with social media platforms	**Open standards-based integration** Standard-based connectivity and open architecture to enable internal and external integration	**Context-aware** Enable omnichannel experience based on situational and environmental information about people, places and things.
Modular and nimble Design independent, interchangeable modules that are extensible, reusable, maintainable and adaptable	**Microservices-based** Build service around business capabilities that can be deployed independently by fully automated deployment machinery	**Managed self-service** Enable managed self service though rule-based processes without the need for constant human supervision	**Autonomous** Use machine learning and artificial intelligence systems to sense, comprehend and learn about customer to provide convenient and tailored experiences	**Secure** Secure all digital channels, transactions and application programing interface by realizing end-to-end security	**Accelerated** Adopt DevOps and continuous integration and continuous delivery practices to achieve both high speed reliability and performance.

Collaboration – driving RegTech into the future

Regulators, RegTech firms, professional service organizations and financial institutions will all need to work together in an effort to continue innovation, reduce overall costs of compliance, and accurately and effectively report to the regulators. Regulators are becoming more knowledgeable in the capabilities of RegTech solutions. The possibility of viewing data and monitoring the sustainability of organizations in real time could make RegTech an alluring option from a regulator's perspective going forward. RegTech firms will have to continue to evolve their technologies through innovation and understanding of new regulations. Financial institutions have to consider short-term vs. long-term approaches to their regulatory strategy while considering cost and the ability to comply with each regulation. Professional service organizations can provide industry insights and advisory support to both providers and users of technology in order to help implement new RegTech solutions.

Additional RegTech capabilities and solutions

Based on the EY Horizon Scanner (a global database of over 16,000 FinTech firms), 1,300+ companies identified themselves as RegTech. The field is continuously evolving, rapidly changing and will continue to evolve over the next few years. Below are examples of various RegTech solutions across the regulatory compliance capabilities.

Capabilities
- IS program management
- IS security metrics
- Threat and vulnerability management/assessments

Solutions
- RiskIQ®
- RADAR

Capabilities
- Verify identity of clients/employees
- Continuous monitoring for financial crime
- Store, protect and provision ID information

Solutions
- Safe Banking Systems
- RSA Archer GRC
- Digital Reasoning

Capabilities
- Capital allocation
- Capital transparency
- Quantitative modeling
- Stress testing
- Cash flow projections
- Country risk
- Risk assessments

Solutions
- AYASDI
- FINCAD

Capabilities
- Vendor risk management governance program
- Proofing/risk assessments
- Vendor issues management

Solutions
- Prevalent
- ProcessUnity

Capabilities
- Board reporting
- Enterprise risk and control assessments
- Operational risk quantification

Solutions
- QRM
- IBM OpenPages

Capabilities
- Business impact analysis/assessments
- Business continuity/disaster recover plan management
- Crisis management

Solutions
- RSA Archer GRC

Capabilities
- Internal control management to address Sarbanes-Oxley
- Govern and track regulatory requirements
- Facilitate compliance activities

Solutions
- ComplyGlobal
- MetricStream

Capabilities
- GL to subledger reconciliations
- Account reconciliations
- Journal entry management

Solutions
- BlackLine

Capabilities
- Legal and regulatory requirements
- Policy, standards, and procedures monitoring and management
- Policy management metrics

Solutions
- MetricStream
- AQMetrics

Capabilities
- Report automation tools
- Web-based streamlining for financial reporting
- Analytics validation and modeling software
- AI-enabled analytics tools

Solutions
- Moody's Analytics
- SAS
- AxiomSL
- Wolters Kluwer

Capabilities
- Information and asset inventory
- Information and asset classification and profiling
- Information and asset monitoring

Solutions
- Moody's Analytics
- ServiceNow

Capabilities
- Configuration management
- Incident and problem management
- IS operations
- Application security

Solutions
- Oracle
- ServiceNow

RegTech capabilities

- Cyber/enterprise information security
- Anti-money laundering/know your customer
- Market/credit/liquidity risk
- Vendor risk management
- Enterprise/operational/IT risk management
- Business continuity/resilience
- Compliance/SOX
- Reconciliations and controls
- Regulatory inventory, policies and standards management
- Reporting and data analytics
- Information and asset management
- IT operations

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