Wolters Kluwer

When you have to be right

Technological innovations are enabling institutions to merge these vital functions into a set of processes to help meet the twin demands of regulatory compliance and a competitive commercial landscape

Financial Services Solutions

Integrating Finance, Risk and Regulatory Reporting through Comprehensive Data Management

WHITE PAPER

By Steve Hostettler,

Will Newcomer and

Inga Rottmann

One of the most challenging data management burdens is rooted in duplication. The evolution of regulations has left banks with various bespoke databases across five core functions: credit, treasury, profitability analytics, financial reporting and regulatory reporting, with the same data inevitably appearing and processed in multiple places.

The idea behind the FRR theme is that sound regulatory compliance and sound business analytics are manifestations of the same set of processes. Satisfying the demands of supervisory authorities and maximizing profitability and competitiveness in the marketplace involve similar types of analysis, modeling and forecasting. Each is best achieved, therefore, through a comprehensive, collaborative organizational structure that places the key functions of finance, risk and regulatory reporting at its heart.

Inventing Tomorrow's Business Model

New technology and fresh thinking about its uses enable institutions to create data management solutions that support closer connections among finance, risk and regulatory reporting, forging processes and structures to keep pace with an ever changing commercial and supervisory environment.

Data travels faster than ever, anywhere and all the time. Yet as fast as it moves, it has barely been able to keep up with the expanding agendas of financial supervisors. You might not know it to look at them, but the authorities in Basel, Washington, London, Singapore and other financial and political centers are pretty swift themselves when it comes to devising new requirements for compiling and reporting data. They seem to want nothing less than a renaissance in the way institutions organize and manage their finance, risk and regulatory reporting activities.

The institutions themselves might want the same thing. Some of the business strategies and tactics that made good money for banks before the global financial crisis have become unsustainable and cut into their profitability. More stringent regulatory frameworks imposed since the crisis require the implementation of complex, data-intensive stress testing procedures and forecasting models that call for unceasing monitoring and updating. The days of static reports capturing a moment in a firm's life are gone.

One of the most challenging data management burdens is rooted in duplication. The evolution of regulations has left banks with various bespoke databases across five core functions: credit, treasury, profitability analytics, financial reporting and regulatory reporting, with the same data inevitably appearing and processed in multiple places.

This hodgepodge of bespoke marts simultaneously leads to both the duplication of data and processes, and the risk of inconsistencies – which tend to rear their head at inopportune moments (i.e. when consistent data needs to be presented to regulators). For example, credit extracts core loan, customer and credit data; treasury pulls core cash flow data from all instruments; profitability departments pull the same instrument data as credit and treasury and add ledger information for allocations; financial reporting pulls ledgers and some subledgers for reporting; and regulatory reporting pulls the same data yet again to submit reports to regulators per prescribed templates.

The ever-growing list of considerations has compelled firms to revise, continually and on the fly, not just how they manage their data but how they manage their people and basic organizational structures. An effort to integrate activities and foster transparency – in particular through greater cooperation among risk and finance – has emerged across financial services. This often has been in response to demands from regulators, but some of the more enlightened leaders in the industry see it as the most sensible way to comply with supervisory mandates and respond to commercial exigencies, as well. Their ability to do that has been constrained by the variety, frequency and sheer quantity of information sought by regulators, boards and senior executives. But that is beginning to change as a result of new technological capabilities and, at least as important, new management strategies. This is where the convergence of Finance, Risk and Regulatory Reporting (FRR) comes in.

The idea behind the FRR theme is that sound regulatory compliance and sound business analytics are manifestations of the same set of processes. Satisfying the demands of supervisory authorities and maximizing profitability and competitiveness in the marketplace involve similar types of analysis, modeling and forecasting. Each is best achieved, therefore, through a comprehensive, collaborative organizational structure that places the key functions of finance, risk and regulatory reporting at its heart.

The myriad advances that fall under the RegTech rubric, such as centralized FRR or RegTech data management and analysis, data mapping and data visualization, are helping financial institutions to get out in front of the stringent reporting requirements at last and accomplish their efforts to integrate finance, risk and regulatory reporting duties more fully, easily and creatively.

The glue that binds this entity together and enables it to function as efficiently and cost effectively as possible – financially and in the demands placed on staff – is a similarly comprehensive and unified FRR data management. The right architecture will permit data to be drawn upon from all relevant sources across an organization, including disparate legacy hardware and software accumulated over the years in silos erected for different activities ad geographies. Such an approach will reconcile and integrate this data and present it in a common, consistent, transparent fashion, permitting it to be deployed in the most efficient way within each department and for every analytical and reporting need, internal and external.

The immense demands for data, and for a solution to manage it effectively, have served as a catalyst for a revolutionary development in data management: Regulatory Technology, or RegTech. The definition is somewhat flexible and tends to vary with the motivations of whoever is doing the defining, but RegTech basically is the application of cutting-edge hardware, software, design techniques and services to the idiosyncratic challenges related to financial reporting and compliance. The myriad advances that fall under the RegTech rubric, such as centralized FRR or RegTech data management and analysis, data mapping and data visualization, are helping financial institutions to get out in front of the stringent reporting requirements at last and accomplish their efforts to integrate finance, risk and regulatory reporting duties more fully, easily and creatively.

A note of caution though: While new technologies and new thinking about how to employ them will present opportunities to eliminate weaknesses that are likely to have crept into the current architecture, ferreting out those shortcomings may be tricky because some of them will be so ingrained and pervasive as to be barely recognizable. But it will have to be done to make the most of the systems intended to improve or replace existing ones.

Just what a solution should encompass to enable firms to meet their data management objectives depends on the specifics of its business, including its size and product lines, the jurisdictions in which it operates, its IT budget and the tech it has in place already. But it should accomplish three main goals:

1. Improving data lineage by establishing a trail for each piece of information at any stage of processing

2. Providing a user-friendly view of the different processing step to foster transparency

3. Working together seamlessly with legacy systems so that implementation takes less time and money and imposes less of a burden on employees.

We're all in this separately

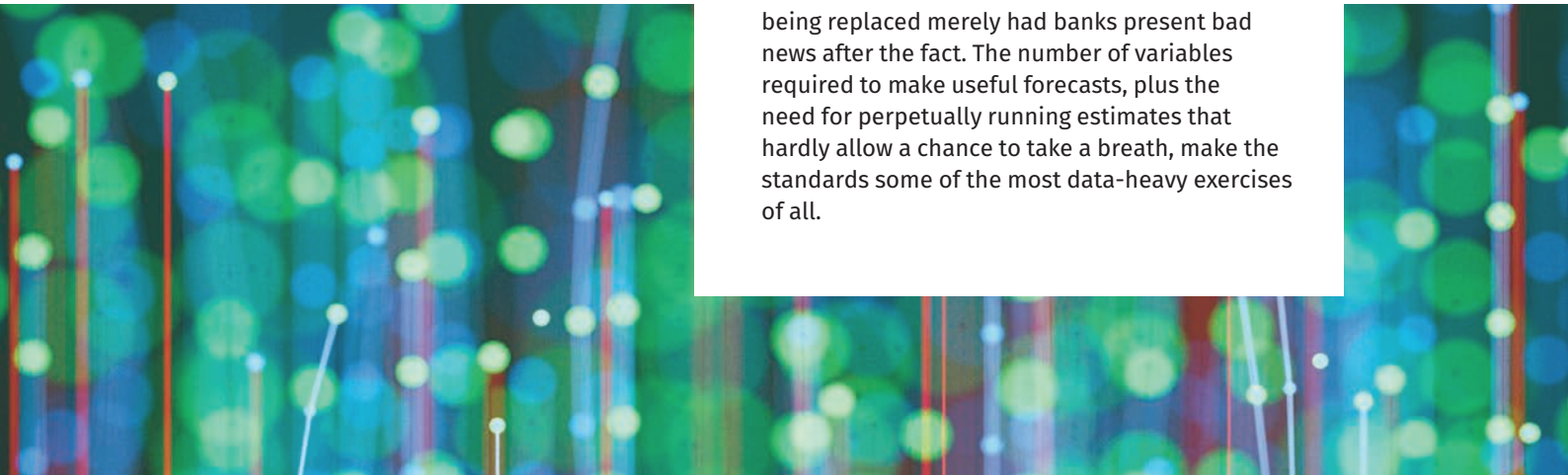
The two great trends in financial supervision – the rapid rise in data management and reporting requirements, and the demands for greater organizational integration – can be attributed to a single culprit: the lingering silo structure. Fragmentation continues to be supported by such factors as a failure to integrate the systems of component businesses after a merger and the tendency of some firms to find it more sensible, even if it may be more costly and less efficient in the long run, to install new hardware and software whenever a new set of rules comes along. That makes regulators – the people pressing institutions to break down silos in the first place – inadvertently responsible for erecting new barriers.

This bunker mentality – an entrenched system of entrenchment – made it impossible to recognize the massive buildup of credit difficulties that resulted in the global crisis. It took a series of interrelated events to spark the wave of losses and insolvencies that all but brought down the financial system. Each of them might have appeared benign or perhaps ominous but containable when taken individually, and so the occupants of each silo, who could only see a limited number of the warning signs, were oblivious to the extent of the danger.

More than a decade has passed since the crisis began, and many new supervisory regimens have been introduced in its aftermath. Yet bankers, regulators and lawmakers still feel the need, with justification, to press institutions to implement greater organizational integration to try to forestall the next meltdown. That shows how deeply embedded the silo system is in the industry. Data requirements for the development that, knock on wood, will limit the damage from the next crisis – determining what will happen, rather than identifying and explaining what has already happened – are enormous. The same goes for running an institution in a more integrated way. It's not just more data that's needed, but more kinds of data and more reliable data. A holistic, coordinated organizational structure, moreover, demands that data be analyzed at a higher level to reconcile the massive quantities and types of information produced within each department.

And institutions must do more than compile and sort through all that data. They have to report it to authorities – often quarterly or monthly, sometimes daily and always when something is flagged that could become a problem. Indeed, some data needs to be reported in real time. That is a nearly impossible task for a firm still dominated by silos and highlights the need for genuinely new design and implementation methods that facilitate the seamless integration of finance, risk and regulatory reporting functions. Among the more data-intensive regulatory frameworks introduced or enhanced in recent years are:

- **IFRS 9 Financial Instruments and Current Expected Credit Loss.** The respective protocols of the International Accounting Standards Board and Financial Accounting Standards Board may provide the best examples of the forward-thinking approach – and rigorous reporting, data management and compliance procedures – being demanded. The standards call for firms to forecast credit impairments to assets on their books in near real time. The incurred-loss model being replaced merely had banks present bad news after the fact. The number of variables required to make useful forecasts, plus the need for perpetually running estimates that hardly allow a chance to take a breath, make the standards some of the most data-heavy exercises of all.



Institutions must do more than compile and sort through all that data. They have to report it to authorities – in real time in some cases. That is a nearly impossible task for a firm still dominated by silos and highlights the need for genuinely new design and implementation methods that facilitate the seamless integration of finance, risk and regulatory reporting functions.

- **Stress tests here, there and everywhere.** Whether for the Federal Reserve's Comprehensive Capital Analysis and Review (CCAR) for banks operating in the United States, the Firm Data Submission Framework (FDSF) in Britain or Asset Quality Reviews, the version conducted by the European Banking Authority (EBA) for institutions in the euro zone, stress testing has become more frequent and more free-form, too, with firms encouraged to create stress scenarios they believe fit their risk profiles and the characteristics of their markets. Indeed, the EBA is implementing a policy calling on banks to conduct stress tests as an ongoing risk management procedure and not merely an assessment of conditions at certain discrete moments.

- **Dodd-Frank Wall Street Reform and Consumer Protection Act.** The American law expands stress testing to smaller institutions that escape the CCAR. The act also features extensive compliance and reporting procedures for swaps and other over-the-counter derivative contracts.

- **European Market Infrastructure Regulation.** Although less broad in scope than Dodd-Frank, EMIR has similar reporting requirements for European institutions regarding OTC derivatives.

- **AnaCredit, Becris and FR Y-14.** The European Central Bank project, known formally as the Analytical Credit Dataset, and its Federal Reserve equivalent for American banks, respectively, introduce a step change in the amount and granularity of data that needs to be reported. Information on loans and counterparties must be reported contract by contract under AnaCredit, for example. Adding to the complication and the data demands, the European framework permits national variations, including some with particularly rigorous requirements, such as the Belgian Extended Credit Risk Information System (Becris).

- **MAS 610.** The core set of returns that banks file to the Monetary Authority of Singapore are being revised to require information at a far more granular level beginning next year. The number of data elements that firms have to report will rise from about 4,000 to about 300,000.

- **Economic and Financial Statistics Review (EFS).** The Australian Prudential Authority's EFS Review constitutes a wide-ranging update to the regulator's statistical data collection demands. The sweeping changes include requests for more granular data and new forms in what would be a three-phase implementation spanning two years, requiring parallel and trial periods running through 2019 and beyond.

All of those authorities, all over the world, requiring that much more information present a daunting challenge, but they aren't the only ones demanding that finance, risk and regulatory reporting staffs raise their games. Boards, senior executives and the real bosses – shareholders – have more stringent requirements of their own for profitability, capital efficiency, safety and competitiveness. Firms need to develop more effective data management and analysis in this cause, too.

Born in Basel

The critical role of data management was emphasized and codified in Document 239 of the Basel Committee on Banking Supervision (BCBS), "Principles for Effective Risk Data Aggregation and Risk Reporting." PERDARR, as it has come to be called in the industry, assigns data management a central position in the global supervisory architecture, and the influence of the 2013 paper can be seen in mandates far and wide.

BCBS 239 explicitly linked a bank's ability to gauge and manage risk with its ability to function as an integrated, cooperative unit rather than a collection of semiautonomous fiefdoms. The process of managing and reporting data, the document makes clear, enforces the link and binds holistic risk assessment to holistic operating practices.

The Basel committee's chief aim was to make sure that institutions got the big picture of their risk profile so as to reveal unhealthy concentrations of exposure that might be obscured by focusing on risk segment by segment. Just in case that idea might escape some executive's notice, the document mentions the word "aggregate," in one form or another, 86 times in the 89 ideas, observations, rules and principles it sets forth. The importance of aggregating risks, and having data management and reporting capabilities that allow firms to do it, is spelled out in the first of these:

'One of the most significant lessons learned from the global financial crisis that began in 2007 was that banks' information technology (IT) and data architectures were inadequate to support the broad management of financial risks. Many banks lacked the ability to aggregate risk exposures and identify concentrations quickly and accurately at the bank group level, across business lines and between legal entities. Some banks were unable to manage their risks properly because of weak risk data aggregation capabilities and risk reporting practices. This had severe consequences to the banks themselves and to the stability of the financial system as a whole.'[1]

If risk data management was an idea whose time had come when BCBS 239 was published five years ago, then RegTech should have been the means to implement the idea. RegTech was being touted even then, or soon after, as a set of solutions that would allow banks to increase the quantity and quality of the data they generate, in part because RegTech itself was quantitatively and qualitatively ahead of the hardware and software with which the industry had been making do.

There was just one ironic problem: Many of the RegTech solutions on the market at the time were highly specialized and localized products and services from small providers. That encouraged financial institutions to approach data management deficiencies gap by gap, project by project, perpetuating the compartmentalized, siloed thinking that was the scourge of regulators and banks alike after the global crisis.

The one-problem-at-a-time approach also displayed to full effect another deficiency of silos: a tendency for work to be duplicated, with several departments each producing the same information, often in different ways and with different results. That is expensive and time consuming, of course, and the inconsistencies that are likely to crop up make the data untrustworthy for regulators and for executives within the firm that are counting on it.

The one-problem-at-a-time approach also displayed to full effect another deficiency of silos: a tendency for work to be duplicated, with several departments each producing the same information, often in different ways and with different results.

1. https://www.bis.org/publ/bcbs222.pdf

The committee is not pleased

A range of issues led the Basel committee to publish a March 2017 update, "Progress in Adopting the Principles for Effective Risk Data Aggregation and Risk Reporting," in which it chastised the industry for limited progress in following the guidelines set forth in the original BCBS 239 document. Declining to pull punches, it said that "banks' level of compliance is unsatisfactory and the overall implementation progress remains a source of concern to supervisors." The update cited four aspects of ineffective data management and reporting:

- "Difficulties in execution and management of complex and large-scale IT and data infrastructure projects, such as resources and funding issues, deficiencies in project management, and coordination with other ongoing strategic (programs).
- "Over-reliance on manual processes and interventions to produce risk reports, although some manual processes are unavoidable.
- "Incomplete integration and implementation of bank-wide data architecture and frameworks (e.g. data taxonomies, data dictionaries, risk data policies).
- "Weaknesses in data quality controls (e.g. reconciliation, validation checks, data quality standards)."

Just as the complexity of housing data has evolved, so have the data management tools. Data management is typically thought of in three stages: Extract (E), Transform Structures (T) and Load (L). Considering the multiple levels of staging tables between data sources and storage areas, most real-world data management processes consist of much more than three sequential steps (e.g. ETLELT or ELTETL) – and this is just to get the detailed data.

As scathing as it was, the committee's indictment only reflected the initial efforts to apply RegTech solutions to the thorny data management issues confronting the industry, including the need to bring finance, risk and regulatory reporting functions closer together, an objective strongly alluded to, although not set out explicitly, in the 2017 update. The expanding demand for improved technology to meet more rigorous supervisory mandates is bringing in much bigger players with bountiful technological expertise and longer, broader experience in financial services. They are expected to put tech breakthroughs to better use by providing more comprehensive data management solutions.

Bigger and better tech solutions: Increasing volumes, transparency, and processing complexity while constraining the processing times calls for new solutions delivering blazing performance and acceptable total cost of ownership (TCO).
Relearning the data alphabet: Data storage has evolved from simple flat files to databases to marts to warehouses, and now to 'lakes' housed in 'big data' environments, where all kinds of structured and unstructured data is tended by data scientists. Proprietary calculating and reporting solutions designed for different requirements complicate the data requirements picture even further.

Just as the complexity of housing data has evolved, so have the data management tools. Data management is typically thought of in three stages: Extract (E), Transform Structures (T) and Load (L). Considering the multiple levels of staging tables between data sources and storage areas, most real-world data management processes consist of much more than three sequential steps

(e.g. ETLELT or ELTETL) – and this is just to get the detailed data.

Additional steps – FRR Calculations (C), Aggregation (A) and Presentation (P) – are needed throughout to meet today's analytical and reporting requirements. When considered end to end, multiple occurrences of E, T, L, C, A and P are embedded in today's data management processes – many of which are manual or semi-manual and still performed by senior management.

The quest for performance. In-memory computing is a new paradigm delivering enhanced application performance and scalability by moving data previously stored in disk-based databases (hard-drives, SSD drives) into Random Access memory (RAM).

As all required data are always kept in memory, queries run 1,000 times faster because there is no need to move data from disk to RAM prior processing.

Furthermore, in-memory computing platforms can easily scale up (i.e., vertical scalability) by upgrading existing hardware with more powerful servers (more RAM and/or computing power).

Keeping the TCO under control. Besides scaling up, in-memory computing platforms can scale out (i.e., horizontal scalability) by adding more affordable commodity hardware to the computing grid. One drawback of in-memory computing is that, byte for byte, capacity costs far more. That is why **storage class memory** is such a welcome development. Storage class memory is a happy medium between RAM and flash storage space, offering the best features of both. It is broadly a type of flash storage and has similar costs and durability, but data can be retrieved at speeds similar to those for data already in RAM, and after being processed in RAM, data can be stored again at speeds that are much faster than for conventional flash storage.

These advances in memory can help institutions get more out of vast amounts of data that have long been held in storage, but impractical to retrieve and analyze because capacity constraints only allow them to focus on urgent matters like regulatory compliance. Putting this shuttered data to use will help them improve decision-making and deliver the ability for all levels of the organization to operate in a more agile, responsive and forward-looking way. Two other significant and closely connected developments are services for managing and maintaining tech, rather than tech itself.

Cloud computing involves the management of systems by third-party specialists, reducing infrastructure and IT staffing costs. As with the hardware advances, cloud computing and SOA make data management more flexible, adaptable and scalable. Institutions can hire as much or as few resources as needed to adjust to changes in business volume.

The Cloud is not new, but it has undergone rapid evolution, resulting in an expansion of the types of partnerships available to include varying degrees of operational and maintenance work by the third-party vendor. Among the broad categories of relationships are:

- Infrastructure as a service (IaaS). The vendor uses its own hardware and is responsible for maintaining it.
- Platform as a service (PaaS). The relationship is deeper, with the financial institution relying on the vendor's data management platform.
- Software as a service (SaaS). This involves the use of web-based applications, with the vendor responsible for software upgrades.
- Business process as a service (BPaaS). This is essentially a combination of the other three. The vendor becomes a one-stop shop to which a bank can hand over data that will be turned into a report to be delivered to supervisors.

There may be legal impediments to some of these options. Some jurisdictions require financial institutions to maintain records in the same country or region, for instance. The best solution, if any, for a firm will depend on a variety of factors, including its needs, budget, activities and where it does business.

The right tools are not enough

This technology, impressive as it is, is merely a means to an end. It won't get the job done unless an organization also employs fresh thinking to design and configure a data management system that transforms the disparate data marts and processes underpinning key departments into a more integrated, future-proof approach benefiting not only compliance but also profitability and competitiveness.

Once the system is operating, data needs to be processed in the most economical way possible, requiring the least effort and the fewest steps from the technology and its human handlers. That means creating analytical tools and forecasting models that automate as many procedures as is practical, and that can extract information most efficiently from large and often illogically connected historical data sets. The new tech available to institutions is orders of magnitude faster than much of what it's replacing, but the reporting requirements are expanding so rapidly that a cumbersome, inefficiently organized system could leave firms languishing roughly where they started.

Human input will be required for another vital task: to keep up with the seemingly nonstop imposition of new rules and updates to existing ones. Each change must be interpreted and its place within a firm's regulatory milieu assessed to determine the most effective way to adapt analytical tools and forecasting models. The in-house and/or third-party experts making these judgments should have expertise in risk and finance issues, and also country-specific knowledge. A further shortcoming of newer technologies is the occasional incompatibility they have with one another. Using cloud-based servers may reduce the benefits of state-of-the-art memory and storage systems, for instance, by a need to keep some data in house.

Another issue concerns legacy systems. Some companies may choose to keep as much of their old architecture as they can, and there often are good reasons for it related to cost and staff expertise. Incorporating existing tech into new architecture can save time and money in the startup phase and get a system up and running in a hurry. But it can carry a cost in reduced speed and efficiency down the road.

These obstacles, including the tradeoffs that must be weighed, are not insurmountable, but they need to be addressed when designing, implementing and maintaining solutions for FRR tasks. Responding to such challenges in the right way will result in a system that is fast, flexible, scalable, stable and adaptable, allowing a firm to handle regulatory and business demands today and tomorrow.

We're all in this together

Probably the most critical feature of a well thought-out solution is a dedicated, focused and central FRR data warehouse that can chisel away at the barriers between functions, even at institutions that have been slow to abandon a siloed organizational structure reinforced with legacy systems.

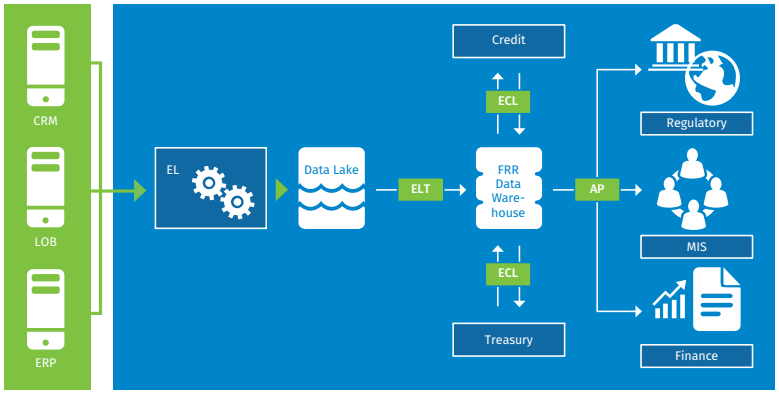
A typical firm will have databases devoted to five core functions: credit, treasury, profitability analytics, financial reporting and regulatory reporting. The databases are often kept on vintage hardware and accessed in an older language like COBOL, with much of the data in each repeated in at least one of the other databases, perhaps in a different language and with meaningful discrepancies. These old systems have a way of sticking around. There may be contractual costs for giving them up, and employees have grown accustomed to them.

The path to effectively transforming data management is to combine tried and true processes and solutions with the selective deployment of new technologies with the target to remove undesirable duplication of both rules and storage. A possible map of such an approach to integrate finance, risk and regulatory reporting needs is as follows:

- Apply ETL/ELT to source data that is convened ito staging tables or a data lake;
- Transfer required and/or relevant data from the staging tables or lake to a permanent, defined FRR data warehouse;
- Conduct analysis, calculation and presentation centrally;
- Transmit results to various business functions and external recipients.

(see diagram opposite.)

By reducing the need for departments to pursue these processes independently, a more unified data management structure is created, minimizing duplication and redundancy and improving efficiency. The result is that banks have more time to focus on core business goals.



A blueprint for the transformation of data management

The principal purpose of a data warehouse is to integrate all data, wherever and however it's stored, into a standard format. This allows firms to avoid a common error illustrated more fancifully in the Indian fable about a group of blind men who encounter an elephant. Each man touches the elephant in a different spot, experiencing it from a unique perspective and drawing a distinct and incomplete inference about the nature of the beast.

Without a dedicated FRR data warehouse, in which a set of processes – from rules and calculation engines or other analytical routines and forecasting models – are applied to convert data into a common format, users of the data working in isolation can be just as much in the dark. Credit officers pull core loan, customer and credit information out of the great data elephant. Treasury extracts core cash flow data. Officials responsible for profitability assessments need all of those details, plus ledger information for allocations. Financial reporting and regulatory reporting require still other numbers.

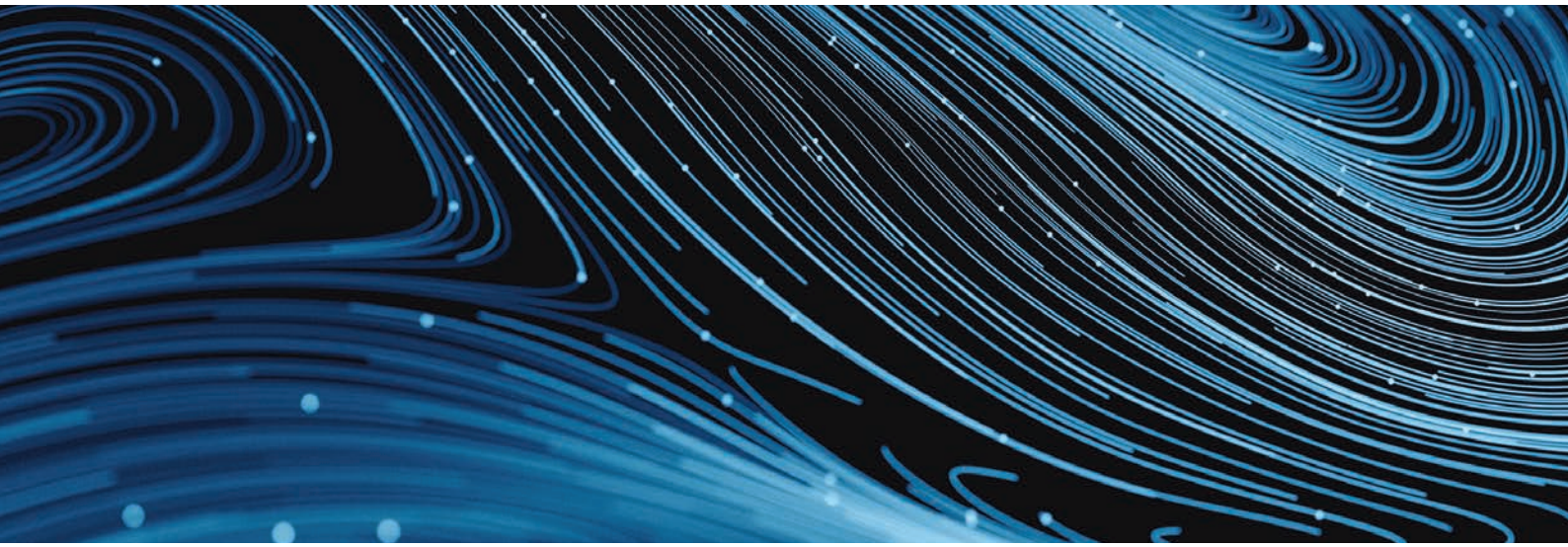
While different elements are needed for each of those functions, it is essential for compliance and strategic planning that they be derived from data of verified accuracy, written in a consistent manner. There must be enough of it, too, generated during a variety of business and economic conditions. The accuracy of analytical methods and credit loss forecasting models, and therefore the data they generate, can only be confirmed from information accumulated throughout a cycle, ideally going back seven years or more.

Same place, same data

Having clean, integrated and standardized data, all stored in a dedicated FRR data warehouse, confers numerous advantages in time, money and accuracy:

- Data duplication is eliminated, and so are the errors that are bound to result from renderings of the same details produced from multiple databases and for a range of purposes. Having identical material appear in internal risk and compliance reports, say, and in submissions to regulators is better for business and for meeting supervisory obligations.
- When data duplication vanishes, so does the duplication of analytical processes that can cause further errors and limit the ability of different functions to work together on the same information. Centralized storage of clean, verified data facilitates the overarching aim of integrating an institution's key operations.
- Firms can rely more heavily on legacy systems, minimizing expenditure on new equipment and the time it takes to put it into service. Depending on business lines, size and the regulatory environments they operate in, among other factors, entities will get more or less mileage out of existing systems, but integrating them into a modern, centralized architecture will be the most effective approach for many.
- The use of standardized integrated data and common analytics and calculation engines by everyone with access to the FRR data warehouse limits the need to repeat work.
- Standardization makes it easier to scale up a system and facilitates the adaptation of existing forecasting models and other analytical processes to new sets of regulations or adjustments to existing ones. That allows change to be accomplished faster and cheaper, and it creates a firmer foundation for building the solution needed to navigate the supervisory landscape of the future.

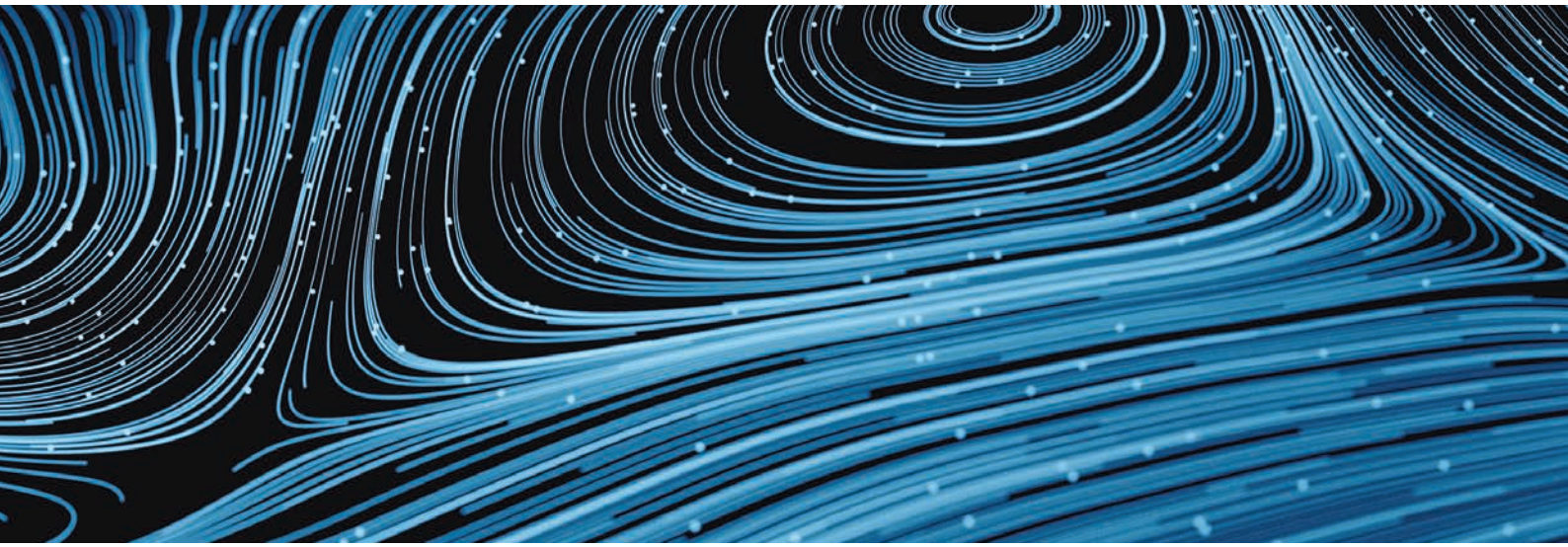
To be certain that your data is accurate, you have to know where it originated and how it got from there to here. In the modern reporting environment, data is aggregated for analysis and forecasting at multiple levels, down to a finer granularity than ever, often to individual transactions. Detail is necessarily omitted at each layer of aggregation – that's kind of the point – as analytical rules are applied to the data, and that creates the potential for information to become increasingly garbled as the aggregation process undergoes successive steps.



This is why data lineage is crucial. During aggregation, and during the cleansing and verification process in the FRR data warehouse as data derived from disparate sources and analytical methods is aligned, a chain of custody needs to be established showing the provenance for each item, including each adjustment made along the way by the application of models and rules. But this must be accomplished by using processing power sparingly and intelligently. Such information is unlikely to be included in regulatory submissions, but authorities are demanding that firms demonstrate how they arrived at particular numbers in their reports. That prospect may persuade internal auditors and compliance officers to beat them to it to make sure everything is in order. Indeed, they are likely to ask far more questions than external supervisors.

It may be possible to answer them by running processes in reverse to see if they produce the original values, but with the need to apply hundreds of rules to a single aspect of a single transaction under some forecasting models, that would consume too much time and computing capacity, even in this day and age. The log for such an exercise would be unwieldy. It's more sensible instead to conduct spot checks, running a small sample of calculations to verify results.

To be certain that your data is accurate, you have to know where it originated and how it got from there to here. In the modern reporting environment, data is aggregated for analysis and forecasting at multiple levels, down to a finer granularity than ever, often to individual transactions.



The bar keeps rising

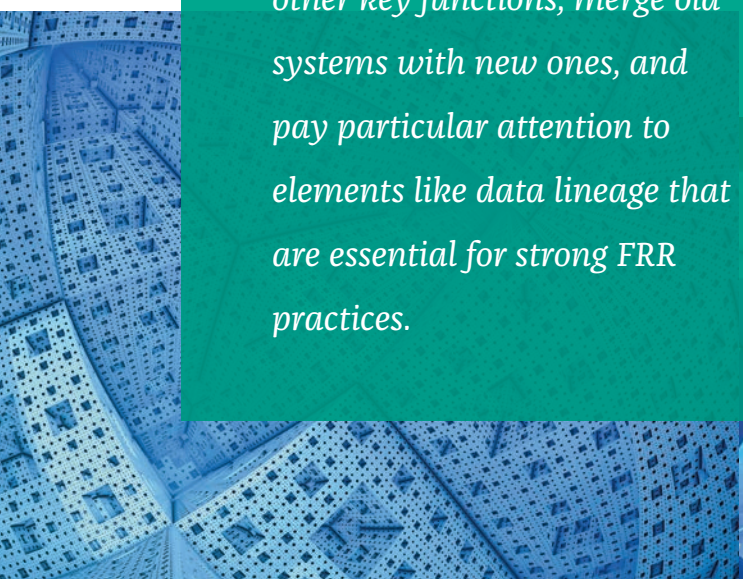
Integrating finance, risk and regulatory reporting is likely to be a long and arduous journey, but one that will help an organization get where it needs to go and become what it needs to be: a highly competitive business that has greater command of its commercial and supervisory environments and is better prepared for the future. As the global crisis recedes further into the past, competitive pressures remain high, and regulators keep raising the bar for compliance reporting. They continually demand more data, more often, in finer detail and with greater accuracy. The industry and the technology that supports it strained until recently to keep pace, but that has changed thanks to developments in RegTech.

Now it's up to firms to implement solutions in the most effective way to meet the breadth and depth of reporting requirements, as well as the broader internal and external mandate for business integration. Each institution must determine what it needs and how to employ it to best effect. But it's helpful to remember that data management is too important to leave to data managers alone. Implementation is a job for the entire organization, not just the IT department.

It's also an endeavor best achieved incrementally, not all at once. After putting a system in place at one level of aggregation and working out the kinks, it will be time to tackle the next one. Whatever features are built in, the best solutions will include a dedicated FRR data warehouse that links risk, finance and other key functions, merge old systems with new ones, and pay particular attention to elements like data lineage that are essential for strong FRR practices.

Taking these steps will ensure the adaptability, flexibility, stability and scalability in data management that will allow institutions to keep the bar within reach whenever supervisors raise it again, as well as – most importantly – have more time to focus on core business goals. Better-managed data helps banks manage risk better, and build a clearer picture of customer behaviors. Data management, risk and finance professionals need to transform or replace their bespoke tools and processes to support this transformation.

Whatever features are built in, the best solutions will include a dedicated FRR data warehouse that links risk, finance and other key functions, merge old systems with new ones, and pay particular attention to elements like data lineage that are essential for strong FRR practices.



About Wolters Kluwer Financial Services

Wolters Kluwer N.V. (AEX: WKL) is a global leader in information services and solutions for professionals in the health, tax and accounting, risk and compliance, finance and legal sectors.

We help our customers make critical decisions every day by providing expert solutions that combine deep domain knowledge with specialized technology and services.

Wolters Kluwer reported 2016 annual revenues of €4.3 billion. The company, headquartered in Alphen aan den Rijn, the Netherlands, serves customers in over 180 countries, maintains operations in over 40 countries and employs 19,000 people worldwide. Wolters Kluwer shares are listed on Euronext Amsterdam (WKL) and are included in the AEX and Euronext 100 indices. Wolters Kluwer has a sponsored Level 1 American Depositary Receipt program. The ADRs are traded on the over-the-counter market in the U.S. (WTKWY).

For more information about our solutions and organization, visit WoltersKluwer.com, or for our financial services solutions, visit WoltersKluwerFS.com.

Contact information:
Wolters Kluwer
25 Canada Square
Canary Wharf
London E14 5LQ
United Kingdom

Please visit **www.wolterskluwer.com** for more information.

Wolters Kluwer

When you have to be right