Digital Business

Six Data Architecture and IT Infrastructure Governance Mandates for Multinational Banks

Banking and financial services institutions operating in multiple countries and executing digital transformation programs can leverage the principles of BCBS 239 to standardize and stabilize their IT infrastructure and related data architecture processes to realize digital business value across their geographic footprint.

Executive Summary

Banks are investing in technology and architecture to enhance the digital platforms and reporting processes to:

▍ **Respond to frequent regulatory changes**, such as General Data Protection Regulation (GDPR), BASEL, Markets in Financial Instruments Directive (MiFID), and the Dodd-Frank Act.

▍ **Offer enhanced customer satisfaction** by introducing new services and products such as automated voice recognition systems, automated product recommendations, chatbots to continue 24x7 customer support, and many more.

▍ **Harmonize IT systems and automate processes** for use of common tools and technologies.

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Despite having a clear business case for digital, banks and financial services typically fail to execute IT and organizational change management due to lack of visibility into budget allocation and resource utilization in the planning phase of evaluating the technology landscape. The most common cause of failures occurs when the technology decision-makers lose control of the target architecture model and make random changes in choosing products. This situation leads to an internal disruption and the program goes out of control. Inappropriate budgeting can cause substantial operational losses. A change in products for data architecture and IT infrastructure causes the need to edit builds and can hamper deployments. Overall, there is a high likelihood of having a negative impact on the financial and regulatory reports, which will result in a reputational loss to the firm.

Banks are mandated to comply with BCBS 239 Principles of "Data architecture and IT infrastructure" and "Governance." Aligning the right set of governance at the right time will mitigate the risk of a program manager losing control of the program due to changing tools and architecture during the digital transformation journey. The white paper outlines a proven set of governances as a control mechanism based on our experience with various financial services customers in the U.S. and EMEA.

A typical digital program scenario

Let's take an example of a bank that has multiple operational units spread across multiple countries. The bank is running a digital transformation program with aggressive timelines to comply with regulatory mandates and meet market demands. The program management establishes a strategic unit and an implementation unit, which will follow Agile methodology. The strategic unit will be responsible for defining the architectural decisions, identifying tools and technologies, defining policies and procedures for the technology ecosystem, describing business processes and making all strategic decisions. The implementation unit will be responsible for development, testing and delivery of codes, which will align with the target operating model of the strategic unit. The bank has given entities power to generate their local reports while the group reports are managed from bank headquarters. In such a scenario, a major step is assessing a unified "tools and technologies"

and "IT infrastructure" on which the projects of the program would run irrespective of any country or business unit they belong to. This will ensure that they have access to the same technology and speak the same language as described in the data management framework.

In our experience, local entities want to retain their legacy systems and operating models and build reports in their own way. When the strategic unit chooses the components of the IT infrastructure, the entities are pushed to migrate their builds in the new infrastructure. It becomes very challenging to adapt to a changing infrastructure during the decision phase and eventually migrating to the target operating model. The major challenge is to assess the impacts of changing tools and technologies on project performance and prepare for a more accurate budget and resource allocation.

How tools and architecture change impacts program performance

Data transformation in regulatory application(s) are heavily dependent on tools and architecture. In our experiences, we have observed the following approaches, and resulting project impact.

Tools change, architecture remains the same

The strategic unit has participants from local and group entities (each entity is defined as each country that is participating in the program) that influence the decision of the board.

In our experience, the program manager overseeing this approach will completely lose control over the environment, and program performance will degrade as time and budget expenditure increases. Overall, the vision of having a unified technology ecosystem is also undermined, leading the program to failure.

These entity representatives are often inclined to a solution that seems comfortable based on their experience. Because of multiple local and group representatives, with multiple views, the decision on identification of tools is typically delayed or changes regularly.

When the tools and technology stack changes (as defined by the of strategic unit), the implementation unit is also expected to adapt to those changes in parallel. Figure 1 demonstrates the impact of this scenario on the program performance.

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Architecture changes, tools remain the same

In this approach, different project tracks have their own architect – but these individuals rarely communicate and collaborate with one another or help strategic units decide on final architectural solutions. As a result, the development and testing teams are left waiting for a final architectural solution. Even if they start implementing it, they may be forced to enact constant re-working, as
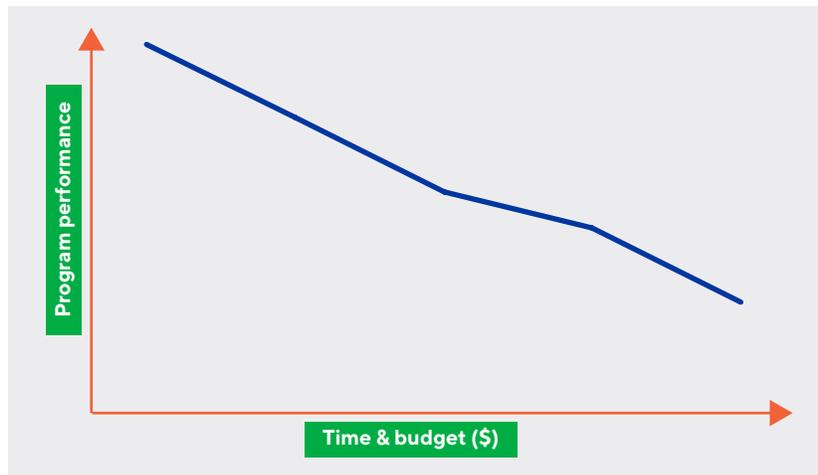
Tools change, architecture same

Figure 1

architecture change requires incessant change on the same code base (see Figure 2).

This approach leads to a decline in program performance. Each project team processes their data in their own individual silo to meet regulatory timelines and does not wait for final architecture approvals. By the time the final standardized architecture is recommended, additional effort is required to plug the solution into the target architecture, which can increase unanticipated budget spikes.

At times, the vision of the program becomes clouded in the process. The reason is that the older apps are often hard coded and more difficult to transform to operate in the new architecture. At some point this program will be a failure.

Architecture and tools remain the same

In this scenario, each local and group stakeholder is provided with a standard architecture, a common set of tools and technologies, and a framework guideline that must be followed. The strategic and implementation units work with a common vision and follow guidelines to execute the program using a common architecture framework (see Figure 3).
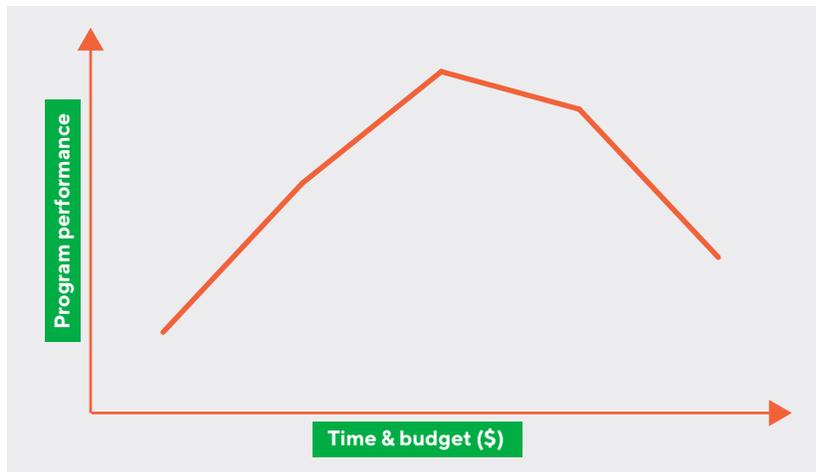
Tools same, architecture change

Figure 2

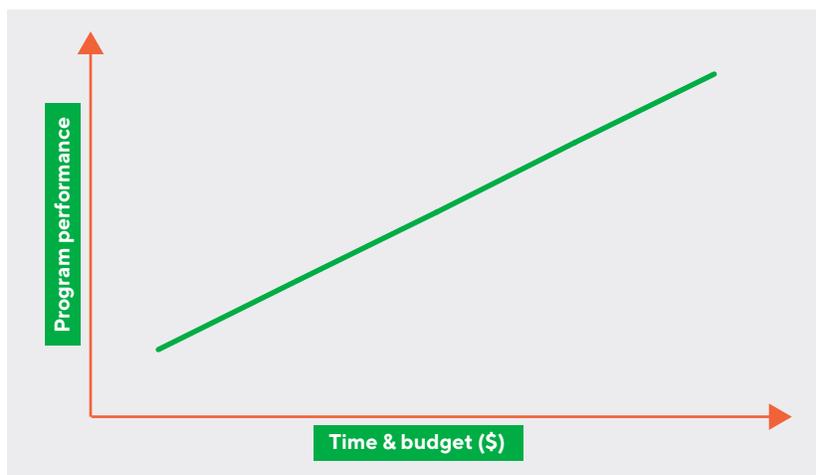## Tools same, architecture same

Figure 3

In this scenario, tools and architecture are aligned before the project starts; it is a win-win situation for all the involved parties. The strategic unit has established a clear vision for creating a standardized architecture, common tools and technologies, and policies to execute projects. It has also documented all steps that are then passed on to implementation units.

The implementation unit can refer to the framework for required team collaboration, which allows all participating countries and business units in the program to use the same language when creating reporting solutions and frameworks. Regulatory audits and other oversight can also be conducted much more efficiently with a standardized data architecture that is easily followed by the implementation unit in collaboration with the strategic unit.

In our experience with regulatory data warehousing projects in financial services of a diversified asset base in continental Europe, we have seen that firms that maintain a consistent architecture and tools set are those that make progress toward the fastest returns on investment in terms of program performance. In a unified technical ecosystem, the report factories can use the same documentation and coding standards that are shared across all entities. This leads to easier execution and maintainability of software codes. New applications are easier to build and deploy and can be scaled on demand using the same architectural designs and frameworks.

As an example, if an organization uses a data modeling tool consistently across the organization and chooses to leverage the same frameworks, then all analytics and reporting tools can use the same nomenclature of an attribute – minimizing the risk of missing any attribute or talking in silos. A set of common language and rules makes data sharing much simpler and enhances the project performance overall. See Figure 4.
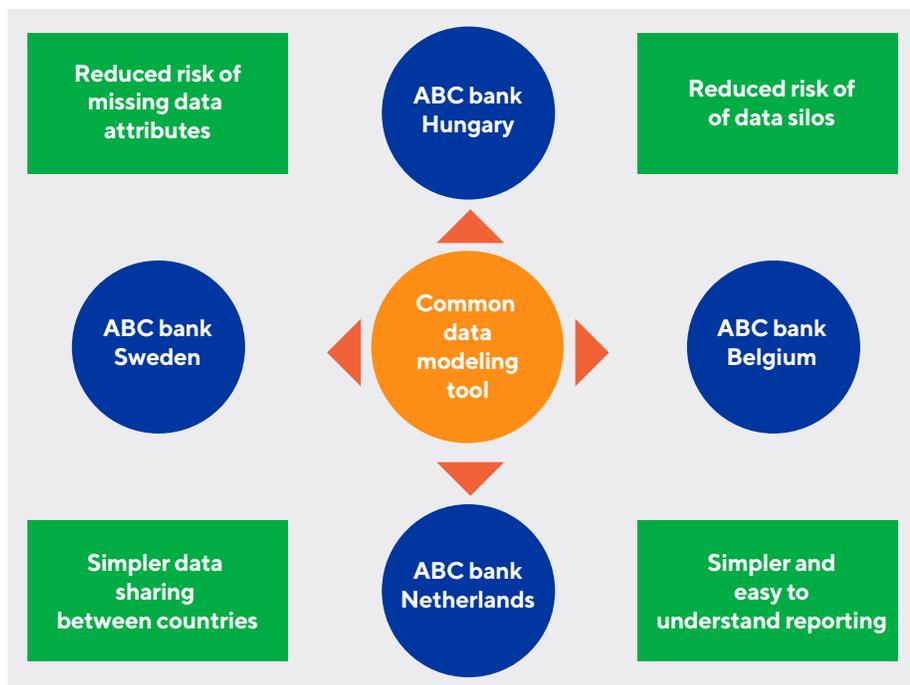
Modeling success

Figure 4

A bank performing a multi-country reporting rollout has better visibility into its infrastructure requisites once it has installed thorough governance and control on:

❚ Sizing of environments and applications (e.g., source systems).

❚ Volume and frequency of data delivery of all countries.

❚ Infrastructure consistency for all entities.

The infrastructure management framework will remain same throughout the program, such as the server size and versions of operating system and tools.

Thus, the program will not be affected since the infrastructure cost will remain the same as predicted. In addition, there will not be any negative impact on the project delivery timeline such as deployment change requests due to a changing infrastructure.

Architecture and tools both change

In this approach, the representatives of each entity in the solution board, along with the final approver of the solution board, fail to align on an IT and data infrastructure on architecture as well as a definitive set of tools and technologies to execute the program. An inordinate amount of time is then spent on evaluating the architecture and the tool sets. The implementation team must wait for the IT infrastructure, on which they can develop the solutions, to be defined (see Figure 5).

This is the most undesired scenario for any organization, in which the projects never kick off and remain stalled in the planning stages. A lack of output ends in program failure.
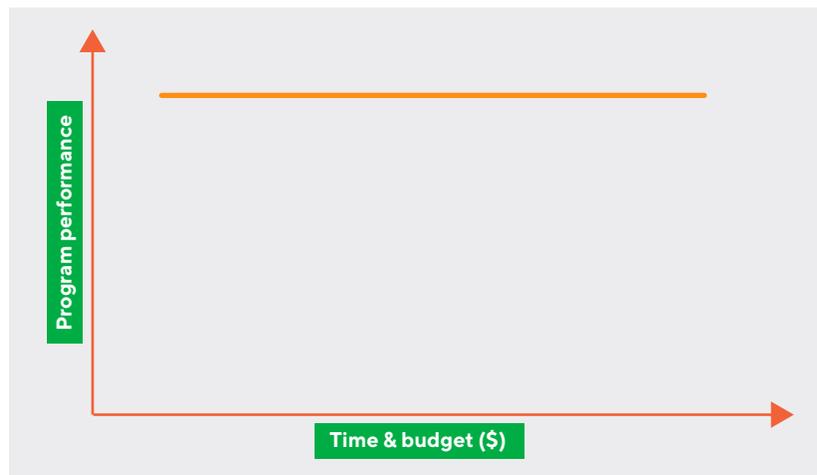
Tools change, architecture changes

Figure 5

Stepping though program management (desired scenario)

| Infrastructure management framework is consistent | ▶ | No change request on infrastructure change | ▶ | No impact on budget and delivery timelines |

Figure 6

Next steps: Establishing a target operating model

Banks often operate in multiple countries and therefore need to roll out local and group compliance reports. Given aggressive timelines to meet market and regulatory demands, organizations often need to kick off programs from scratch or revamp existing IT Infrastructures and set up new standards of the target operating model (TOM). Figure 7 provides a summary view.

Often, banks put priority on defining the IT ecosystem and then define the policies and procedures. We recommend early adoption of governance and to install controls on decision-making and the establishment of data and IT infrastructure processes to observe how to raise program performance and achieve faster return on investment (ROI). Combining scenarios C and D yields the best and fastest returns, in our experience (see Figure 8).

Summary view

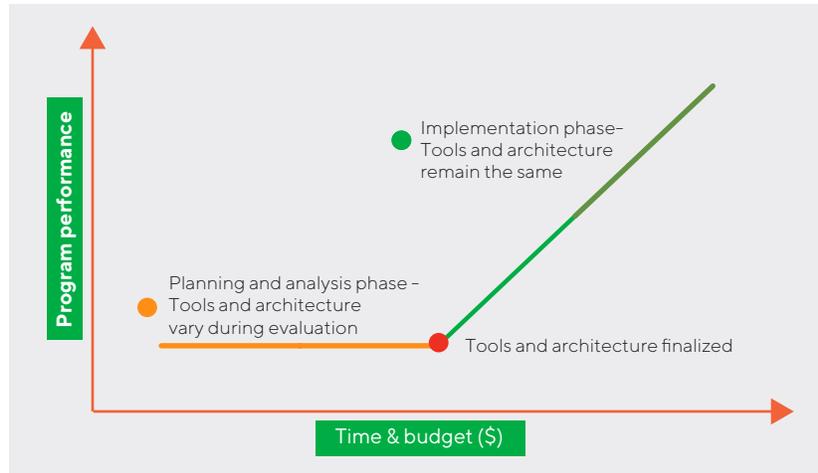Figure 7

Combined scenarios for the fastest returns

Figure 8

Adding effective data governance knowledge to the change management team can produce insights for changing tools and architecture and managing project performance ROI.

Looking forward

Leveraging governance on data architecture and IT infrastructure using BCBS 239 can help financial firms make less myopic decisions during a multi-country application rollout, and ensure successful coordination between strategic and implementation units. Six governance mandates include the following:

1. **Engage a strong data governance team, early on, that can create and define clear roles and responsibilities as well as policies and procedures for the target operating model.** The team should be involved before the inception of the data architecture solution so that it can create a strategy around tools and architecture within acceptable timelines and create guidelines for clear data management frameworks. In addition, the team can create collaterals to be passed on to each country for local and group reporting standard processes.

2. **Finalize the data architecture and IT infrastructure to include the entire technology ecosystem before implementing reporting solutions.** This can help achieve the highest program and project performances both from solution as well as a budget point of view.

3. **Create a strategy to deploy and manage an extremely experienced team in the strategic unit of the solution board to expedite the decision of finalizing the architecture, tools and technologies.** Having experienced members on the team can speed the processes and help to make timely and efficient decisions while the implementation unit is awaiting the decision on TOM from the strategic unit.

4. **Assign a representative of each country manager to update the strategic unit on the situation of their reporting urgencies** and the steps taken by their local team to meet those urgencies.

5. **In the case of a heavily urgent report rollout, try to create a process for report generation by re-utilizing existing tools and architecture and get a team ready for manual corrections.** This team can be identified by utilizing the human resources that are not impacted by the urgency reports and is awaiting the TOM. It is also recommended to have versions documented clearly for any audits.

6. **Data governance units and business architects are recommended to work closely with program managers and allocate an overhead budget for the initial period when the data architecture and IT infrastructure TOM is in the planning phase.** The ROI may not meet goals but will pick up once the TOM and framework is decided. The budget can be spread during the forecast using the approach detailed above in scenarios two and three and summarized in Figure 8.

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Endnote

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