# Navigating Data Integrations Post Mergers & Acquisitions A Data Engineer's Perspective

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#### Abstract

The data integration is vital to combine newly acquired company' data to tap into new opportunities to gain a competitive edge. This research paper investigates the main factors and best practices for data engineers as they handle the merging of data systems during the post-merger phase. It looks into data integration, maintaining data integrity, and utilizing data for strategic advantages. The following sections will check and look at the steps to achieve data integration and maximize the benefits of the merger.

### Keywords: Mergers & Acquisitions (M&A), Data Integration, Platforms, Data security, Data privacy, Business continuity, Data model and Reporting Introduction:

Mergers and acquisitions (M&A) are big events for companies. They bring chances for growth and bigger market share. However, they also come with challenges, especially when it comes to combining data systems and processes. It's crucial to merge these systems properly to keep business running smoothly and to take advantage of the merger's benefits. When companies undergo mergers and acquisitions, there's a lot that needs to be sorted out. They need to figure out how to combine assets, match up different corporate cultures, reorganize teams, and streamline financial systems. Beyond just merging the surface-level aspects, there's also a lot of planning involved to expand into new markets, keep customers happy, and ensure that the two workforces meld together smoothly. Each step is carefully thought out to make the transition as seamless as possible.

On the data side, data engineers are the unsung heroes behind the scenes. They're tasked with making sure the data systems from both companies fit together like pieces of a puzzle. This means merging databases, ensuring data remains accurate, and sticking to regulations. Data engineers have to deal with all kinds of data structures, fix issues on the fly, and develop unified data strategies that fit the new company's goals. Their work turns raw data into valuable insights, helping the company make smart decisions and streamline operations after the merger.

When companies merge, data managers and data engineers face a multitude of challenges that can be quite overwhelming. First, they need to combine different data systems from both companies, which means aligning various databases and ensuring all the data is accurate and compatible. This isn't easy because each company likely has its own data architecture and unique processes. Additionally, they must ensure that the combined data complies with all regulations, which can be a complicated and time-consuming task. On top of that, there are often inconsistencies in the data that need to be identified and resolved, which requires meticulous attention to detail. Data engineers also have to work on creating effective data strategies that

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align with the new business goals after the merger. During this process, they must constantly troubleshoot and fix issues to keep everything running smoothly. Ensuring data integrity and reliability while juggling so many tasks is one of the biggest challenges they face, but it's crucial for the success of the newly formed entity.

#### **Importance of Effective Data Integration:**

Mergers and acquisitions have become a popular strategy for organizations planning to expand their market share, gain access to new technologies, or achieve economies of scale [2]. However, the integration of IT systems, including data management and analytics, is often a significant hurdle that can impede the success of these transactions. [2] Failure to effectively manage data systems and integrations can lead to operational disruptions, data silos, and a loss of valuable insights, ultimately undermining the anticipated benefits of the merger. [2]

As highlighted in the literature, "Challenges often arise when managers try to integrate two companies' information technology systems, and the difficulties encountered often create both short- and long-term performance problems for companies."[2] Addressing these challenges is utmost importance for data engineers to ensure a smooth and successful post-merger integration.

#### **Assessment Phase:**

The first thing data engineers need to do after a merger is to thoroughly check out the current data situation. This means figuring out what data sources, formats, and systems both companies use, and understanding the rules and security measures they have in place for handling data.



**Figure 1: Assessment Phase** 

**Platforms**: Different companies often use various data management platforms. One might rely on Azure for handling large databases, while another uses GCP. Cloud technologies these days offer a range of services. Deciding which platform to use and integrating the systems from both companies is crucial.

**Data Models:** Comparison of similarities and differences of actual data is a crucial step. Data models define how data is structured and related. Comparing data models helps identify similarities and differences and what changes are needed to integrate them. For example, one company might use a customer-centric model, while the other uses a product-centric one. Aligning these models ensures that data can be easily accessed and used across the newly merged company.

**Licenses and Costs**: Data management solutions usually come with licensing fees, which could be based on the number of users or on a subscription model. Comparing these costs helps in deciding which option is the most cost-effective while meeting the merged company's needs.

**Servers and Applications**: Companies might use different servers and applications. For instance, one may use Microsoft servers and the other Linux systems. Data engineers must integrate these server environments to ensure smooth functionality.

**Maintenance**: Maintaining servers and applications is an ongoing task. It involves regularly updating software, replacing hardware, and ensuring data backups. Proper maintenance helps prevent downtime and keeps everything running efficiently.

**Dependencies and Supporting Vendors**: During the integration process, it's important to identify all dependencies and coordinate with supporting vendors. Dependencies might include software licenses, third-party applications, or contracts that need to be managed. Engaging with vendors early on and ensuring they are aligned with the integration plans can help avoid disruptions and ensure a seamless transition.

**Resources**: Resources include hardware, software tools, and skilled personnel needed to manage and integrate data. Having ample resources available is the key to a smooth integration process.

**Security and Compliance**: Keeping data safe and following rules are crucial. This means setting up strong security measures like encryption and access controls to protect sensitive information. It's also important to comply with industry standards and regulations like HIPAA to avoid legal problems and protect the company's reputation. Data engineers need to work closely with legal and IT teams to make sure these security and compliance strategies are done right.

**Business continuity**: Business continuity is all about making sure an organization can keep running smoothly, even when unexpected disruptions occur during the data transition phase. The goal is to minimize downtime and maintain critical operations, ensuring that the company can quickly recover and continue serving its customers. Key components of a business continuity plan include risk assessment, the development of strategies to mitigate those risks, and regular testing to ensure the plan works effectively.

Based on the assessment, data teams need to create a unified data strategy that fits with the overall integration plan and the combined organization's long-term goals. This strategy should cover data integration, data quality, and data governance, so the new organization can make the most of its data assets.

#### Methodology:

Successful data integration requires close collaboration and communication among various stakeholders, including IT teams, business units, and leadership. Data engineers must collaborate with their counterparts from the company that's being acquired to understand their data needs, challenges, and expectations. Good

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communication and collaboration make the transition smoother and ensure that the new data systems and processes meet the needs of the combined organization.

**Communication and Collaboration:** For successful data integration, everyone needs to work together closely and communicate well. This includes IT teams, business units, and leadership.

**Feasibility and Ease of transformation:** This depends on several factors, including the availability of adequate resources, clear goals, and effective planning. Ensuring stakeholder buy-in and addressing potential risks early on are crucial steps. Additionally, leveraging advanced tools and technologies can significantly enhance the likelihood of a successful transformation.

**Time and Cost**: Time and cost are critical aspects of any transformation project. Completing tasks within the set timeline helps control costs and ensures smoother implementation. Delays can lead to increased expenses and potential project failure. It's essential to allocate resources efficiently and monitor progress regularly. Bringing business stakeholders and the development team onto the same page minimizes misunderstandings and speeds up decision-making. This alignment helps keep projects on schedule and within budget. In an M&A scenario, optimizing time and cost can accelerate the realization of synergies and value from the combined entity.

**Designing and Modeling**: Designing and development in data integration involve creating clear data models to define how data is structured and interrelated. Data modelers identify and design source and target tables to map out where data is coming from and where it needs to go. This helps in organizing the data flow and ensuring consistency. During M&A, harmonizing data models from both organizations ensures seamless data integration, enhancing operational efficiency.

**Development**: Coding efforts are crucial for transforming and migrating data. Data engineers write scripts and use ETL (Extract, Transform, Load) tools to move and modify data accurately while maintaining data granularity. The goal is to ensure that data from the source fits well into the target structure, maintaining data quality and integrity throughout the process. During M&A, effective development minimizes integration risks and ensures data from both companies is aligned and available.

**Testing**: Quality and testing in data integration are crucial steps to ensure that the data is reliable and accurate. Data engineers need to establish clear quality standards and perform thorough testing throughout the integration process. This includes validating data against predefined rules, checking for consistency, and ensuring there are no duplicates or errors. Automated testing tools can help streamline this process and catch issues early on. Regular testing and quality checks help maintain data integrity and build trust in the data being used for decision-making. For M&A, rigorous testing ensures that the integrated data is accurate and reliable, reducing the likelihood of post-merger issues.

**Reporting**: Reporting in data integration is vital for tracking progress, making informed decisions, and supporting business processes. Detailed reports summarize the integration, highlight any issues, and provide insights into data quality. Reporting in data integration leverages dashboards for real-time insights, aggregation reports to summarize data, and time-based reports to track trends over specific periods. During M&A, comprehensive reporting provides transparency into the integration process, helping stakeholders stay informed and aligned.

#### **Conclusion:**

In conclusion, merging data systems during mergers and acquisitions is a tough but necessary task. It involves meticulous planning and collaboration between business and development teams to ensure everything fits together and runs effortlessly. Data engineers play a pivotal role in this process, working diligently to merge different data architectures, maintain accuracy, and adhere to regulations. With new technologies like cloud computing, AI, and machine learning, data integration has become more efficient and reliable. These technologies enable automated data processing, real-time analytics, and enhanced data security, significantly reducing the time and effort required for integration.

A robust data integration strategy transforms raw data into valuable insights, aiding smart decision-making and streamlined operations. Addressing potential challenges early and leveraging advanced tools, organizations can ensure a smooth and efficient transition. New technologies also enhance scalability, allowing the integrated system to grow and adapt to future needs. This approach not only helps achieve immediate goals but also sets a foundation for long-term success, positioning the organization for future growth and innovation.

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