

Enterprise Data Governance: The Human Element

A DataFlux White Paper
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Enterprise Data Governance: The Human Element

Executive Summary

Enterprise data governance (EDG) is a bit of a catchall term, with many nuances and complexities not typically emphasized by those looking for a quick fix. To be sure, technology and business processes are essential if one wants to be able to reliably run reports and make decisions based on accurate information. However, many organizations overlook the cardinal importance of the human element before, during, and after their data quality and governance initiatives.

This white paper analyzes the human factor. Almost every organizational endeavor impacts data quality – from individual data entry to automated database backups (and everything in between).

This white paper examines these data management issues within the context of Acme, Inc., a fictitious manufacturer of widgets. Rather than looking at data quality and management through a theoretical lens, this white paper uses a persona-oriented approach to tackle the issues endemic to many organizations vis-à-vis EDG.

Acme Company History

Acme, Inc. is an international widget manufacturer. The company was incorporated in 1980 with corporate headquarters located in Anytown, NJ, USA. Over the last 30 years, it has had its fair share of ups and downs, including a series of recent headaches. Expansion in the mid-1980s resulted in significant growth. At present, the company employs more than 5,000 employees across the globe. 2010 profits were \$500M USD on \$2.1B USD in revenue.

Table 1 presents a brief history of major events at the company:

Table 1: Acme Company History

Year	Event
1980	Formal incorporation of company.
1987	Acme finishes series of acquisitions designed to increase its global presence.
1990	Company files for initial public offering (IPO).
1995	Company begins to search for replacements to existing enterprise resource planning (ERP) and customer relationship management (CRM) solutions. Current applications and systems no longer meet organizations' needs. Enterprise Solutions ¹ is selected.
1997	Implementations of new ERP and CRM solutions begin in earnest.
2000	After repeated delays and cost overruns, Acme finally goes live with Enterprise Solutions ERP and CRM products.
2002	Passage of Sarbanes-Oxley (SOX) Act in the United States causes major problems for the company, as internal controls were particularly lax.
2004	Faced with declining profits, Acme announces layoffs of ten percent of its workforce.
2010	New CEO announces acquisition of smaller widget maker (Beta). Data from Beta is loaded into Acme's ERP and CRM systems. Major issues ensue.

¹ For the purposes of this paper, Enterprise Solutions is a fictitious enterprise software vendor that also provides annual system-related support, consulting, and maintenance to Acme.

Key Players

Many companies suffer from internal conflicts and issues, especially with respect to enterprise data governance. To be sure, Acme is no exception to this rule. This paper focuses on five key internal players at Acme:

- **Eddie Garcia, enterprise architect.** She has worked for Acme for 15 years and is probably the only person in the organization who understands how each system and application works.
- **Ira DeYoung, director of information management.** He has worked for Acme for 13 years and, as such, has intimate knowledge of key cultural and personal issues. He has been a technical lead on dozens of projects, and he knows what makes some projects successful – and why others end in disaster.
- **Fernando LaBrie, director of finance.** He has worked for Acme for eight years. Diligent and conscientious, he frequently has to scramble in order to satisfy his superiors' request for information.
- **Patricia Petrucci, payroll manager.** She has worked for Acme for 25 years and is nearing retirement.
- **Vanessa Lifeson, SVP of customer acquisition and retention.** A results-oriented recent hire, she comes with an impressive pedigree in marketing and customer relations and has little patience for bureaucracy.

Acme: The Current State of Data Quality

Poor data quality and management do not happen overnight. What's more, they are rarely tied to a discrete event. It's more common for an organization to suffer from a culture of ambivalence and neglect to one of its most important assets: its data.

Lamentably, Acme is no exception to this rule. At a high level, data quality and data management at Acme are rudimentary at best. The company has historically triaged all data management issues. That is, its approach has been entirely reactive, not proactive. Previous executives have attempted to imbue a culture of increased accountability, if not data governance, but these initiatives have always lost momentum.

In every case, these executives left the company after a very short period of time. Some were frustrated over their inability to obtain basic and accurate information. Others were tired of making decisions based upon gut feel and instinct.

"Fighting fires" is a poor method to data management. Ask yourself why they are occurring in the first place.

As Tony Fisher points out in *The Data Asset*, organizations cannot move directly from a chaotic, reactive, and undisciplined state of data management to a governed state. You cannot sprint if you don't know how to walk.

At this point, it's fair to ask, "How did Acme's data quality reach its current state?" The next section explores the culprits. They include issues related to specific individuals, technology, and business processes.

Peeling Back the Onion

Acme's data quality issues stem from many different types of issues. This section of the white paper explores them.

People-Related System Issues

By the mid-1990s, Acme realized that its antiquated mainframe could no longer effectively support the organization – much less expected future growth. To that end, it conducted a formal RFP process and ultimately selected – and implemented – a full suite of applications from software vendor Enterprise Solutions.

The project began in 1997 and was plagued by many issues, including internal bickering, delays, and cost overruns. Ultimately, Acme activated its new systems on January 1, 2000. For budgetary reasons, Acme's CIO mandated that Enterprise Solutions went live at that time. While financial necessity may have mandated the decision, quite simply, Acme was ill-prepared for its new system.²

Poor System Setup and Data Migration Decisions

Over the protestations of Enterprise Solutions' consultants, Acme personnel made a number of poor decisions during the configuration of its new system that were never addressed.

For example, the head of benefits insisted that employee beneficiary information was "slammed" into the system, despite the fact that there were many known issues. Upon receiving their annual open enrollment papers, many employees were livid over the inaccuracies: if something had happened to them, their life insurance payouts would have been sent to wrong people or addresses.

At least from a data perspective, there was a much more pressing problem. Patricia, the payroll manager, insisted upon an overly complex setup of the payroll system – one that mimicked Acme's legacy system and failed to take advantage of the new

² If you don't know how to drive a car, racing your friend's Ferrari is probably not a good idea.

Use the introduction of a new system to not only simplify overly complex business processes, but to remove employees who will prove to be difficult later on.

system's more robust functionality. Patricia added a dizzying array of time and attendance codes, neglecting to use the new system as an opportunity to simplify Acme's existing setup.

This superfluous complexity never sat well with Fernando, who, as director of finance, openly wondered why a state-of-the-art ERP required so much manual data manipulation to answer basic questions such as:

- How much did each manager spend on overtime last quarter?
- Were any departments on track to exceed their budgets?

Tired of battling Patricia and fairly industrious by nature, Fernando *quietly* developed a standalone and robust Microsoft Access database to meet his superiors' reporting requirements. Fernando had worked with Eddie and Ira before and knew that they frowned upon these types of workarounds. To that end, he kept his efforts under the radar.

In 2003, Fernando had to stop using this standalone tool because of the passage of the Sarbanes-Oxley (SOX) Act. Acme's CFO decreed that all reporting needed to emanate from Enterprise Solutions. Because of budgetary constraints, however, the IT department refused to provide Fernando with an alternative reporting tool that would allow him to more effectively do his job. Instead, he had to rely upon Enterprise Solutions' standard reports, often having to manually combine multiple reports because he had no direct access to the tables in the database.³

Deficient Employee Training

Many Acme employees claimed to be far too busy to attend training for Enterprise Solutions prior to going live. In some cases, this was true. In others, however, employees simply did not want to learn the new applications – and were never held accountable. The net result of the training issue: many employees entered data incorrectly into the new system for years.

While Ira would notice these problems and attempt to address them, he had no real authority over the end users making these mistakes – or their managers. As the director of information management, he could merely suggest that they pay attention to the data that they were keying into the system. He would run reports on a periodic basis to discover that end users were typically ignoring his recommendations.

Setup Issues and the Dangers of Automation

Patricia's insistence upon a convoluted payroll configuration may have irritated others, but no one questioned her desire to comply with US labor law. However, the Acme implementation team and Enterprise Solutions' consultants never caught a few

³ Many organizations provide this to key employees via Open Database Connectivity (ODBC).

Many data quality issues stem from – and are exacerbated by – batch programs that create thousands of transactions on a regular basis. Be very careful when running them, as massive errors can result.

minor setup issues in the payroll system that ultimately caused major problems. It turns out that a few flags had not been set properly, causing small but regular errors in the manner in which the system calculated employee weekly overtime.

No one discovered the problem until a single employee in 2008 filed a lawsuit, claiming that he had been denied overtime. After hiring an external consultant, Acme confirmed that there was a small but important problem in the payroll system. The fix: checking a few flags. Unfortunately, that fix did not “cascade backward” and recalculate employee overtime correctly. That project took several months and cost tens of thousands of dollars in consulting fees, along with attorney fees and employee payouts.

Acme is not alone in this regard. In fact, many organizations suffer from what author Bob Charette has termed *the dangers of automation*⁴.

While a cataclysmic disaster may not result by running batch programs in enterprise systems on a regular basis, there is an inherent danger in trusting machines and applications to do things en masse. Should there be a basic configuration error the batch program will repeat that error many times, creating erroneous transactions that need to be fixed at some point in the future. As Acme discovered, the fix is typically not quick and easy.

The Beta Acquisition: Data Integration Issues

Many organizations unjustifiably blame software vendors and consultants for all of their woes. To be sure, there are many documented instances (and more than a few lawsuits) relating to botched system implementations. For the most part, however, the myth of the “big, bad” consultant and/or software vendor is just that: a myth. Organizations need to take a good, hard look at what their own employees are doing as it relates to data quality.

In the case of Acme, its 2007 acquisition of Beta and subsequent data migration (see Table 1) significantly contaminated the company’s data set. Duplicate employee, vendor, and customer records were imported into Enterprise Solutions. To this day, the subject is a sore one for both Eddie and Ira, as the two vehemently disagreed on the feasibility of the merger.

As the enterprise architect, Eddie knew that, from a purely technical standpoint, integrating Beta’s systems into Acme’s existing infrastructure was possible. When asked by the CIO if it could be done, Eddie responded in the affirmative.

Ira believed then – and still does now – that “Can this be done?” was simply the wrong question for the organization to be asking. In his view, the better query was, “Should this be done?” Tasked with managing the quality of Acme’s information, he

⁴ Robert N. Charette, December 2009,
<http://spectrum.ieee.org/computing/software/automated-to-death>

Events such as new system implementations and acquisitions have enormous and irrevocable downstream effects on data quality.

knew that Beta's data left something to be desired. In fact, Acme and Beta shared many of the same customers and made some of the same products.

Limited Influence

Ira's title and influence within Acme would not allow him to block the merger outright. After all, the CEO and board of directors faced enormous pressure to grow the company and increase the stock price. Ira knew that he would easily lose that battle and, in all likelihood, his job. As an alternative, he recommended that a massive data quality project commence prior to formally migrating Beta's data into Acme's systems.

Eddie vehemently disagreed, as he knew that he would have to pay support on Beta's systems for as long as they were active. The Beta merger was supposed to immediately cut costs and, in the view of the higher-ups at Acme, "killing" Beta's legacy system was a no-brainer. Ira's pleas that post-merger data would cause utter chaos fell on deaf ears.

To say that these issues adversely affected the organization is the acme of understatement (pun intended). Only days after Beta's systems were retired and its data was brought into Enterprise Solutions, end users began to complain that their reports no longer made sense. First, employees in the procurement department complained that they could no longer easily find codes to place internal orders. Second, many of the standard and custom financial reports that Fernando ran were no longer remotely accurate. Duplicate transactions appeared on many reports, causing a great deal of internal friction. Realizing that he was fighting an uphill battle at Acme, in mid-2008 Fernando accepted a job at another organization. This was a huge blow to Acme's CFO, the finance department, and the company in general. Fernando's unique skill set would be sorely missed.

But the damage didn't stop there. As the relatively new SVP of customer acquisition and retention, Vanessa posed the biggest challenge.

An aggressive, independent, and "take charge" kind of person, Vanessa was hired explicitly for her ability to get results – not for her political tact. In previous jobs, she had easily identified opportunities and acted quickly to seize them. Increasingly, she had relied upon business intelligence (BI) tools and reports to do her job. Acme was not a mom-and-pop store in which anyone could ask, "We haven't seen Mr. Stevens in quite some time. Is something wrong with him?" Rather, it was a global behemoth with thousands of customers.

Master Records

To be sure, managing a master record for each customer was always somewhat of a challenge. Company contacts and addresses change and, in many instances, different Acme customers ordered different products. In point of fact, Acme was no different than many other large organizations in this regard. Prior to the Beta merger, Vanessa kept her carping to a minimum because her team could help her make

heads and tails out of things. Questionable customer records were typically resolved with a few phone calls and emails with Acme clients.

All of that changed after the Beta acquisition. Vanessa was not heavily involved in merger discussions and was aghast upon hearing that the very systems upon which she and her team relied were contaminated with redundant information. Of course, she found this out the hard way. For example, she followed up with a few clients soon after the Beta acquisition, making sure they were happy with Acme products and customer service.

Several former Acme customers with reasonably high profiles had not purchased Acme widgets for years. Because of inaccurate customer data, however, they were included on lists to provide Acme's best with expensive gifts and invitations to conferences – with expenses included. Vanessa received several phone calls from ex-Acme clients thanking them for sending them upwards of \$25,000 in free goods and promotional items, even though they had long since ceased doing business with Beta in the early 2000s.

This was news to Vanessa.

Vanessa took her complaints to Eddie and wasn't exactly subtle about her dissatisfaction. "How could you have let this happen?" she demanded. Several screaming matches ensued over the next few days. Vanessa no longer trusted Acme's CRM system – and the data in it. She imposed an indefinite moratorium on all customer acquisition and retention efforts until Ira and Eddie cleaned up the customer data in Enterprise Solutions. Vanessa demanded a single version of the truth from the system: comprehensive and accurate master data on *all* Acme customers.

Things were about to get worse. The Beta acquisition also caused major fulfillment issues at Acme. Inventory and product codes had not been standardized before the data migration and many Acme customers suffered as a result. Issues included:

- Ten major customers did not receive orders placed until two months later (despite Acme having plenty of inventory). Six vowed never again to buy from Acme and one even threatened a lawsuit.
- Several customers received incorrect shipments. While these orders were ultimately rectified, Acme had to make significant concessions in order to retain their business.
- A few bloggers got wind of some emails from Acme internal personnel to affected customers. These embarrassing emails were posted on the Internet, damaging Acme's goodwill and reputation.

Involve key internal players as early as possible.

Data quality and management are not “set it and forget it tasks.” They need to be constantly examined for potential issues and improvements.

Organizational and Cultural Issues

To be sure, Acme’s Beta Acquisition brought with it its own set of issues. This is true with any large M&A activity. Mergers have a generally recognized failure rate of greater than 50 percent.⁵ Without digressing too much, it’s typically a Herculean challenge to merge different companies’ cultures, workforces, data, and systems.

As it relates to Acme, however, the Beta acquisition is not the single culprit of its data quality issues any more than Enterprise Solutions is. Acme had a long history of cultural and organizational issues that caused data quality and management to suffer to the extent that it did. In other words, its data quality and management issues preceded Beta. This section covers those issues.

Poor Employee Performance Management

Patricia had long been a problem employee. She liked to do things her way and wasn’t terribly open to change or showing others how things worked. At Acme, it was an open secret that Patricia was difficult to work with. For whatever reason, however, no one wanted to do anything about it. To some extent, payroll managers are much like dentists: you don’t want them to be upset with you.

Over the years, Patricia’s attitude and unwillingness only worsened. She frequently blamed “the system” (read: Enterprise Solutions) for payroll-related problems. Never once did she look at her own processes. More than a few of her direct reports left over the years, frustrated by her management style.

Failure to Recognize the Importance of Data Quality

In a way, hiring Ira as the director of information management provided plausible deniability to Acme. Senior executives clearly cared about – and understood the importance of – data quality. After all, a full-time employee was devoted to it.

Acme did not understand that one person does not an organization make. Data quality needs to be ingrained in the culture. It cannot be the purview of one person, and it certainly can’t be a one-time organization-wide “initiative.”

Incentives

Acme employees – and the five protagonists featured in this white paper – focused on doing *their own* jobs. While there is nothing wrong with this *per se*, it does cause problems. They have not been incentivized to “act globally” – i.e., in the best interests of Acme. As such, they are unable to address the needs of the larger organization.

⁵ See <http://edition.cnn.com/2009/BUSINESS/05/21/merger.marriage/index.html>

Overly Specialized Employees

On the Data Roundtable in December 2010⁶, I wrote about the need for organizations to employ *hybrids*, defined as people who:

...adeptly bridge the IT-business chasm, often acting as interpreters. They know enough about what the business wants to frame those requests in terms that IT can easily understand and synthesize. By the same token, they know enough about back-end things (read: databases, tables, interdependencies, etc.) that they can stop a runaway business end-user from making life a living hell for the IT department – and the organization in general.

Attempt whenever possible to retain hybrids, as they are often very difficult to replace.

Acme never looked inwardly to find – much less hire – employees with these dual skill sets. Fernando was the exception that proved the rule: he understood the front-end applications (in his case, financials) as well as the back-end tables. He had taught himself Microsoft Access because he believed it would help him more effectively do his job. He was right: he was indispensable. After he left in mid-2008, the company (already under a budget crunch) made no efforts to backfill his position, much less hire someone with his particular skills.

Recommendations for Acme

By the end of 2010, Acme's key internal players could only agree on one thing: they universally mistrusted the data – and believed it was strongly inhibiting the company and their ability to effectively do their jobs.

This section will examine ways to overcome some of the aforementioned challenges.

- Immediate: Initiate data cleansing
- Short-term: Hire hybrids and provide enhanced tools
- Long-term: Imbue a culture of data quality

Initiate Data Cleansing

At present, no one at Acme trusts the data. While Vanessa, Ira and the rest of the team have different opinions about who's at fault, the fact remains: the data needs to be purified, and soon. Employees, vendors, stockholders, and customers are all being affected by a great deal of inaccurate, incomplete, and redundant data. This problem affects the very ability of the company and its employees to function.

⁶ See <http://www.dataroundtable.com/?p=5134>

When massive data issues manifest themselves, pull out all the stops.

Hire Hybrids and Provide Enhanced Tools

It is imperative for Acme to cease doing business as normal. While Ira might be a smart guy, no one person can be responsible for data quality and management. Acme needs to hire employees with the requisite skill sets to handle issues as they arise.

However, hiring “rock stars” is a necessary but not sufficient condition to improve data quality and management at Acme. Rather, employees must have adequate tools to monitor data quality and extract key information out of Enterprise Solutions. Sarbanes-Oxley does not prohibit an organization from purchasing and deploying powerful solutions that allow employees to do their jobs. The CFO’s requirement that all data needs to be extracted via standard reports was an overreaction, although admittedly understandable given the newness of the act after it was first passed.

Beyond reporting, Acme should purchase tools that, if used properly, would enhance the company’s data quality and management. The company should use the Beta acquisition as a unique opportunity to learn and avoid making the same mistakes in the future. Regular data management tools such as master data management (MDM) would go a long ways towards promoting a single version of the truth.

Imbue a Culture of Data Quality

Years of consulting have taught me that no technology alone will solve all of an organization’s problems. Beliefs that a “best-of-breed” solution will eradicate poor management, antiquated business process, and the like represent wishful thinking at best, naïveté at worst. Technology can help but is no substitute for diligent and accountable employees who realize the importance of data quality and management – at all levels of the organization.

Ideally, an organization’s management, technology, culture, employees, and business processes are all conducive to continuously improving data quality and effective data management.

Summary and Conclusion

While Acme is fictitious, it faces challenges similar to those of many other large organizations. For Acme to get to where it needs to be, it will have to overcome many obstacles based on years of neglect⁷ and organizational bad decisions. At individual employee, department, and organizational levels, it will need to embrace a new mindset with respect to EDG. It will have to deal with conflicting priorities in a better manner than it has in the past. Acme will need to make decisions not merely based upon short-term cost containment, but upon long-term organizational health. It has to do a vastly superior job of managing its master and reference data – and not

⁷ Imagine not going to the dentist for ten years. The next appointment is not going to be fun.

Fight the urge to solve a problem in the short-term by creating a much larger one in the long-term.

merging data sets willy-nilly. Finally, it must understand the often squishy nature of EDG.

As we have seen throughout this paper, EDG issues are rampant at Acme. Since its inception, it has seen the introduction of major new internal systems, key employee turnover, and major legislation. At the same time, it has not taken the requisite steps to address exacerbating data quality and management issues. Against this backdrop, it has exponentially increased risk throughout the enterprise.

About the Author

Phil Simon is the author of *The New Small* (Motion, 2010), *Why New Systems Fail* (Cengage, 2010) and *The Next Wave of Technologies* (John Wiley & Sons, 2010). He consults companies on how to optimize their use of technology. His work has been featured on ZDNet, *The New York Times*, *The Globe and Mail*, ReadWriteWeb, and many other sites.

While not consulting, Phil speaks about emerging trends and technologies. He also writes for a number of technology-oriented media outlets. He received a BS in policy and management from Carnegie Mellon University and a masters in industrial and labor relations from Cornell University.

Additional Resources

White paper: Enterprise Data Governance – How Established Is It in the Marketplace?

<http://www.dataflux.com/Resources/DataFlux-Resources/White-Paper/Enterprise-Data-Governance---How-Established-Is-It.aspx>

White paper: An Enterprise Data Management Overview

<http://www.dataflux.com/Resources/DataFlux-Resources/White-Paper/An-Enterprise-Data-Management-Overview.aspx>

Customer case study: Sun Microsystems Utilizes DataFlux Technology as Foundation of an MDM Initiative

<http://www.dataflux.com/Resources/DataFlux-Resources/Customer-Success/Sun-Microsystems-Utilizes-DataFlux-Technology-as-F.aspx>

Webcast: Implementing a Data Quality Strategy

<http://www.dataflux.com/Resources/DataFlux-Resources/Web-Seminar/Implementing-a-Data-Quality-Strategy.aspx>

To learn more about data governance, visit:
dataflux.com/knowledgecenter/dg



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