Data Management Dynamics: The ROI from Data Quality

As companies strive to achieve the often-elusive 360-degree view of the customer, many are discovering that accurate data is essential to success. But how can you justify a data quality management initiative in these days of tight budgets and stringent ROI requirements? Leading organizations from a variety of industries demonstrate how technology can help.

Every organization—regardless of size or industry—is struggling with managing the data that's generated from the constant interaction with customers. The volume of customer information coming into corporate systems is staggering—and it's growing every year.

High volume, unfortunately, does not equate to high quality, reconciled and unified customer information in different systems—“owned” by different parts of the enterprise. Poor data quality is a significant problem for many organizations as it can lead to inferior customer service, reduced employee productivity, lost sales opportunities and increased marketing costs.

For those organizations that have yet to adopt data quality management initiatives, the challenge is often how to justify a project for a seemingly elusive value proposition, and map out the investments in information systems and human resources that are needed to solve even the most rudimentary data unification and reconciliation projects.

Beyond the refrain of “it’s strategic,” many organizations are searching for straightforward answers to questions such as:

- What tangible or bottom-line benefits have other organizations realized as a result of data quality management efforts?
- What will data quality management cost?
- What's the organizational impact of a data quality management project?
- What's the downside of not pursuing data quality management?
- When is the best time to engage in new data quality initiatives?
- Is data quality management a stand-alone initiative, or should it be pursued in conjunction with other projects, such as customer relationship management?

Organizations across a variety of industries are already experiencing the benefits of data quality management and data integration through the implementation of technology solutions such as customer data hubs. Many organizations have chosen not to get stopped by hard-line ROI calculations inside a customer data management initiative. One CIO explained managing customer data quality this way: “When I eat I don't measure the ROI for food. I simply need to eat or I will starve. The same goes for managing customer data quality—we simply need it. If we don't manage our customer information well, we are starving our company of potential dollars. For some things I don't need an ROI calculation. The benefits are obvious.”

Among the key benefits are improved customer service and relationships, more efficient operations, lower costs and more revenue-generating opportunities. All of these benefits contribute to return on investment.
DATA QUALITY MANAGEMENT: THE TOP 10 BENEFITS

Smart organizations are concerned about maximizing the return on their investment in technology. What follows are some likely returns from data quality management and customer data management. Not all of these scenarios could apply to every organization, but every organization will derive some benefit from their data quality and customer data management initiatives.

COST REDUCTION

1. Back-office improvements

Data quality management can lead to significant benefits in back-office operations, including unified billing, accurate revenue accounting, accurate contractual billings, unified credit management and reduced mailing costs.

By having accurate, up-to-date customer information available to appropriate individuals across the enterprise, an organization is better equipped to perform functions such as timely and accurate contractual billings of customers and management of customer credit. This in turn can lead to faster collection of revenues and more accurate revenue accounting.

2. Reduced costs of direct mail/marketing

Mailing costs due to inaccurate customer addresses are often a hidden cost. A sizable amount of the mail handled by the U.S. Postal Service is incorrectly addressed and billions of pieces of mail every year are undeliverable or misdirected because of wrong customer names and addresses. That means organizations end up sending multiple mailings and spending more money for less impact. Through data quality management and customer data integration efforts, organizations can be assured of having the most up-to-date addresses on all customers, reducing duplicate mailings to the same customer, and subsequently reducing the rate of return mail and associated mailing costs—all leading to increased effectiveness and return on marketing investments.

As an example, Telecom New Zealand, which provides Internet, data, voice, mobile, and fixed-line calling services to millions of customers in New Zealand and Australia, implemented an Oracle data warehouse platform that links data about customers, operations, and technology into a single analytical framework. Known as PROBE (PROactive Business Enabler), the data warehouse performs a range of tasks from customer segmentation to network planning.

To address the reconciliation and unification of data feeding into PROBE, Telecom New Zealand deployed Oracle Customer Data Hub to provide a central store of data sourced from multiple operational systems. The company refers to this data store as its enterprise database (EDB), and stores almost all customer information in the enterprise database. The data primarily comes from its customer care and billing system that is synchronized with the enterprise database. Following data cleansing and de-duplication, the enterprise database in turn feeds PROBE, which provides updated data in near real-time rather than one day behind.

PROBE drives all Telecom New Zealand’s sales and marketing campaigns, whether they’re delivered through direct mail, outbound telemarketing, email, or text messages to mobile

THE TOP 10 BENEFITS OF A DATA QUALITY MANAGEMENT INITIATIVE

1. Back-office improvements. Data quality management can lead to benefits such as unified billing, accurate revenue accounting, accurate contract billings, unified credit management and reduced mailing costs.

2. Reduced costs of direct mail/marketing. Companies can decrease the costs associated with direct mail and marketing efforts by having more accurate data.

3. Reduced operating costs. Improved customer data and the consolidation of that data into a single source can lead to significant savings in operations costs for companies.

4. Faster and more accurate billing. Operating a central resource to manage data quality rules, taxonomy, and process enables organizations to keep customer information accurate, consistent and up-to-date, helping to ensure that invoices and other mailings get to customers in a timely manner. And, collections can be expedited with more accuracy in customer information.

5. More effective cross-selling and up-selling. With more accurate and reliable data on customer preferences, interests, and demographics, enterprises can more effectively cross-sell and up-sell their products and services to customers.

6. Better relationships with customers. Organizations with more accurate and reliable information about customers will have better relationships with those customers.

7. Improved customer service. Having accurate and timely information on customer preferences and concerns is vital to providing top-notch service.

8. Front-office improvements. Organizations can unify the corporate Web site with back-office systems, ensuring consistent data from all sources.

9. Improved regulatory/compliance efforts. With greater assurances that customer data is current and correct, companies are more likely to be compliant with government regulations.

10. Bolster privacy efforts. An effective data-quality and customer data management effort can help protect the privacy and security of sensitive customer data.
phones. The Oracle data warehouse platform is instrumental to the carrier’s success in targeting its sales messages more effectively. The benefits are: improved effectiveness of marketing and decision-making by consolidating all customer and product information into a single source; increase in campaign response rates from less than 5 percent to nearly 30 percent while lowering marketing costs through better message targeting; reduced churn through identification of “at risk” customers and products; and improved access to analytic tools, which allows more staff to take advantage of the data warehouse.

“Our target conversion rates now range significantly higher than the old rules-based approach,” explains Mike Evertzen, IS investment manager, sales and marketing, Telecom New Zealand. “At the same time, we’ve been able to reduce the scale of campaigns to less than one-tenth of the previous sizes, which represents a major savings. Targeted marketing helps build better customer relationships and that enhances our brand while increasing loyalty and retention.”

3. Reduced operating costs
Improved customer data and the consolidation of data into a single source can lead to significant operating cost savings for companies.

The Americas-based operations of Danka Business Systems PLC, an independent provider of enterprise imaging systems and services, required integrated customer data for improved efficiency and to meet SOX reporting requirements. Data was fragmented by functional applications, and obtaining accurate customer data was a high-maintenance, costly endeavor. A traditional data warehouse approach was not feasible, as source systems changed constantly and information would often be out of date by the time reports were run.

The company deployed Oracle Customer Data Hub for its Americas-based operations, producing one version of customer data for nearly 70,000 active customers. Danka consolidated local systems and practices into a single environment with institutional processes for workflow and approvals, and gained greater visibility into transactions as they occurred. The consolidated customer systems led to costs savings of about $30 million through the reduction of staff required to maintain multiple systems.

Additionally, integration with Oracle Financials allowed Danka’s financial books to be closed within two weeks rather than the traditional four to six weeks. Furthermore, having historical records of customer activity produced more accurate quotes for sales, billing and collection, and improved customer relations (for example, preventing accidental billing of customers for service calls when they have service contracts).

Since all customer-facing groups operate out of a common hub, the group that interacts with the customer enters customer data changes into the system. There is no need to transmit change notifications between departments. All groups have access to the most up-to-date customer information.

REVENUE GENERATION

4. Faster and more accurate billing
Having a central resource to manage data quality rules, taxonomy, and process enables organizations to keep customer information accurate, consistent, and fresh. For example, if a customer moves, the information is updated centrally and everyone in the enterprise has access to the new address information. This helps to ensure that mailings, such as bills, get to the customer’s correct address in a timely manner, which also leads to reduced costs for extra mailings, follow-up phone calls. Greater accuracy in past-due collection activities helps bring revenue into the company faster.

The Church Pension Group (CPG), provider of pension benefits, insurance services, health benefits, and book
and music publishing services for Episcopal clergy and lay employees, at one time had exhaustive lists of the people it served, often peppered with incorrect information. As a result, the organization was often sending bills to old addresses, causing delays in both billing and payments.

Leaders of CPG realized that it would be more efficient to move away from operational information silos and begin to integrate its customer data. The organization deployed an Oracle Customer Data Hub, enabling each department to continue to use its existing customer information systems while relying on a single, centralized, shared registry of high-quality names and addresses. Once deployed, the Oracle Customer Data Hub was able to continuously identify and eliminate duplicate data.

If a customer changes their address, the change is introduced once, centrally, into the source application, with the data hub automatically ensuring that all applications throughout the enterprise are updated. Customers may interact with different parts of the organization to provide name and address change information; the hub architecture ensures that all systems are kept in sync. As a result, bills and other correspondence are assured of getting to the correct address. According to Clayton Crawley, chief technology officer for CPG, “What we have gained by having our client data centralized across our organization is the ability to do our business better.”

5. More effective cross-selling and up-selling

With more accurate and reliable data, organizations can more effectively cross-market and up-sell their products and services.

Telecom New Zealand product category managers take advantage of an Oracle data warehouse platform that links data about customers, operations and technology into a single analytical framework, known as PROBE (PROactive Business Enabler). Through PROBE, managers can segment customers, enabling them to develop highly customized proposals and then monitor the effectiveness of each marketing campaign. PROBE data and business analytics tools support a variety of special programs and products that reflect the telecommunications preferences among various ethnic communities. The data warehouse enables the company to successfully identify customers and tailor phone plans that respond to customers’ unique call habits.

Using accurate customer data, Telecom New Zealand works to increase its market share by offering customers attractive deals. Upfront analysis through Oracle applications is critical to that objective. Telecom New Zealand analyzes stored data to generate sales offers. Then customers’ responses to those sales offers are stored as data, triggering a new round of marketing activities.

The ability to analyze demographic and statistical data in combination with customer information aids the up-selling process by, for example, helping to identify which telephone exchanges represent the most profitable candidates for broadband upgrades. Telecom New Zealand has realized increased revenue by taking advantage of up-selling and cross-selling opportunities, and as a result is achieving a sizable return on its investment.

“Data is one of our most valued assets, so we’ve tightly integrated the data warehouse with our enterprise systems and the overall Telecom information architecture,” explains Telecom New Zealand’s Evertzen. “As a result, we’ve seen measurable productivity gains and reduced costs, and we have increased revenue by taking advantage of up-selling and cross-selling opportunities. We’re achieving a huge return on our investment.”

CUSTOMER RELATIONSHIP MANAGEMENT
6. Better relationships with customers

Organizations using accurate and reliable customer information have better relationships with those customers. For example, how do you feel when you get three pieces of mail with different spellings of your name from the same company? It can leave you with the impression that the sending company doesn’t know you very well. You may even feel resistant to doing business with them, especially if a competitor knows its customers better. High-quality data from a central source leads to improved relationships, improved customer loyalty and better customer service.

After its Oracle Customer Data Hub implementation, Network Appliance, Inc., a leading provider of unified storage solutions, no longer has to manage dozens of records for the same customer, making processes such as the management of accounts receivable easier. For example, an employee in the collections department doesn’t have to make multiple calls to a customer to negotiate a payment when the customer has multiple invoices. People in the collections department can now view a complete customer record and negotiate a payment plan for the entire account on one call at the same time.

With one master copy of customer information, there is less chance of errors such as name misspellings and incorrect addresses and phone numbers and less opportunity to alienate the customer base.

7. Improved customer service

High-quality customer service is an essential element of any business, and having accurate and timely information on customer preferences and concerns is vital to providing good service.

IHOP Corporation, which operates one of the most popular family restaurant chains in the U.S., was using a system that contained lots of customer interaction information, but the data wasn’t available in a useful, easy-to-access way. There was no enterprise view of service levels and operations on a day-to-day basis.
The restaurant chain implemented Oracle TeleService, Property Manager, Contracts, Project Management, and Project Collaboration modules of Oracle E-Business Suite, which is designed to create a single source of company data. Because much of the company’s customer data is stored in applications from vendors other than Oracle, IHOP needed a way to reconcile and unify that customer data and share it with the Oracle E-Business Suite solution. IHOP deployed an Oracle Customer Data Hub, allowing data to be shared by Oracle and other vendors’ applications and unifying IHOP’s transactional and analytical environments.

To support its franchisees through its call center, IHOP deployed Oracle TeleService. The call center takes calls from restaurant guests and tracks comments. Prior to using TeleService, IHOP received communications from diners by email, but it was difficult to ensure timely responses without a central tracking process. Now, when guests email a comment, they receive an automated message assuring them of a response within 72 hours. The email is then automatically routed to the appropriate department, and the system keeps tabs on the communication until all issues are resolved.

TeleService helps IHOP spot developing trends and take corrective action. In the past, if numerous customers wrote in saying they were unhappy with a particular product, each message was handled individually, so the company had no insight into the problem and couldn’t identify common issues. IHOP’s Oracle infrastructure gives the company the ability to access timely information not possible in the past.

IHOP’s Oracle Customer Data Hub consolidates data across IHOP’s Oracle applications, six point-of-sale systems, several Lawson human resource and financial applications, and an Oracle data warehouse. The Oracle Customer Data Hub then combines all the data to get a complete view of the customer’s identity and also functions as a central place to clean and enrich data. The restaurant chain now has an effective strategy for gathering and analyzing customer data so that it can provide even better customer service.

“We can now proceed with the confidence that we have the most complete, up-to-date view of the guest,” says Patrick Piccininno, vice president, information technology, IHOP Corp. “This helps our interaction with guests and helps us deliver the great service that IHOP is known for.”

**COMPLIANCE/GOVERNANCE**

8. Front-office improvements

Organizations can reap benefits in front-office operations as well. For example, the corporate Web site can be unified with back-office systems, ensuring a unified presentation of data from all sources. There is complete availability of information for the sales force and for customer service representatives.

Organizations may also conduct up-selling and cross-selling efforts in real-time through direct and indirect channels and through call center interactions. If accurate transaction and account information is always available to customers, interactions with customers tend to be more insightful and complete. Selling customers products that they value and can be added to existing solutions increases the likelihood of maintaining customers and increasing customer lifetime:

**IHOP CORP.**

**Challenge:** The family restaurant chain operator had been using a system that contained a large volume of customer interaction information, but the data was not available to corporate users in an easy-to-access way. There were “functional silos” and IHOP had no way to provide an enterprise view of restaurant operations on a day-to-day basis.

**Solution:** The restaurant chain deployed several Oracle products, including Oracle TeleService, Property Manager, Contracts, and the Project Management and Project Collaboration modules of Oracle E-Business Suite, which is designed to create a single source of company results and information. Because much of IHOP’s customer information is stored in applications from vendors other than Oracle, the company installed an Oracle Customer Data Hub. The hub allows data to be shared by Oracle and other vendors’ applications, and unifies IHOP’s transactional and analytical environments.

**Benefit:** IHOP now has a complete, integrated view of customer data. Increased access to data enables management to resolve problems quickly and capitalize on trends. IHOP supports its franchisees through call centers managed by Oracle TeleService. Prior to using TeleService, IHOP received communications from diners by email, and it was difficult to ensure timely resolutions without a central tracking process. Now when guests write in they receive an automated response assuring them of a response within 72 hours. Emails are automatically routed to the appropriate department and the system keeps tabs on the communication until it is resolved.
value over time. Since we know that it costs roughly six times more to gain a customer than it costs to sell to an existing customer, customer loyalty makes all the difference to bottom-line accounting impact.

Network Appliance, Inc., identified 31 major data systems in which customer data was entered and maintained. The company discovered that unclean customer data was producing inadequate business intelligence reports, and that scattered customer data prohibited reliable business intelligence reporting. Time-consuming, costly data reconciliation was required for enterprise data management and customer-facing functions.

To correct this, Network Appliance implemented Oracle Customers Online and Oracle Data Librarian as the hub architecture to create an enterprise-wide customer master—enabling enterprise users to share the same view of the customer. All updates are performed in Oracle Customers Online and pushed out to the enterprise systems through the hub. If a customer record exists in the hub, it will exist in the integrated systems, sales, service, finance and data warehouse. Additionally, any system can receive this updated customer data—not just Oracle-based systems. This allows for complete flexibility when adding new customer-based systems to the network.

The master is also used by the company’s data warehouse to provide executive dashboards with 360-degree customer views for accurate business intelligence reporting. The system has eliminated multiple instances of the same customer, greatly improving process and data quality in sales, enterprise resource planning (ERP), global services, and reporting.

“Our data librarians oversee the updating and usage of our consolidated customer data, and our Oracle system pushes that information out to each source,” says Jeff Bower, IT manager at Network Appliance. “Managing this information from a centralized, secure location will save us a tremendous amount of time and effort.”

9. Improved regulatory/compliance efforts
Enterprises are struggling to comply with a broad range of government and industry regulations, including the Health Insurance Portability and Accountability Act, Sarbanes-Oxley Act (SOX), and Gramm-Leach-Bliley Act. A key aspect with many of these regulations is maintaining accurate and secure data. Without assurances that customer data is current and correct, companies run the risk of non-compliance—and steep fines (or worse) could result.

Data quality management helps organizations ensure that customer records are accurate, thereby helping to support regulatory compliance efforts. By consolidating and maintaining accurate customer data, companies can better meet regulations that are designed to improve corporate controls and integrity.

For example, SOX Section 404 calls for corporations to disclose material risks. If a company has an incorrect address for a customer and sends bills to that wrong address, that could delay payments by the customer, potentially leading to bad debts or write-downs, which can cause a misstatement of profits. If one version of customer data is located in one place (such as a Customer Data Hub), or customer information can be reconciled and unified across different systems, it becomes much easier for an organization to manage that customer data appropriately. The alternative—applying data management rules to customer data located in multiple systems one at a time (with no ability to reconcile inconsistencies among
CRM initiatives remain high in 2005,” according to the report. Organizations’ “intentions to implement CRM and to focus on percent in 2004, resulting in total market revenues of $8.8 billion. August 2005, reported that the CRM applications market grew 8 and Web sites and extranets.

ERP, customer relationship management (CRM) and sales force automation (SFA) systems; business intelligence (BI) and other analytics tools; data warehouses and data marts; and Web sites and extranets.

Research firm IDC in Framingham, Mass., in a study released in August 2005, reported that the CRM applications market grew 8 percent in 2004, resulting in total market revenues of $8.8 billion. Organizations’ “intentions to implement CRM and to focus on CRM initiatives remain high in 2005,” according to the report.

ERP sales are increasing as well. IDC, in a report issued in early 2005, estimated that sales will grow to $36 billion by the end of 2008. There is also increased demand for business intelligence (BI) software. Research firm Gartner, Inc., in Stamford, Conn., in a 2004 report predicted sales of BI licenses would grow to $2.13 billion in 2008 from an estimated $1.72 billion in 2004. All these technology solutions have value because they help provide greater insights into customer behavior, preferences and buying trends. However, the elusive goal for many enterprises is to leverage these investments and finally solve the problem of managing customer data and delivering one reliable, usable version of the truth.

**10. Bolster privacy efforts**

More than ever, protecting customer data is of paramount importance, particularly with the emergence of identity theft as a significant security threat to customer data security. Effective customer data quality management efforts can help protect the privacy and security of customers.

Because the privacy of its customers is important to the Church Pension Group (CPG), the types of data to be included in its systems are reviewed for privacy implications. Safeguards have been implemented for access and use rights for certain types of data.

CPG uses Oracle Data Librarian to connect its transactional applications with the Oracle Data Hub. The transactional systems create XML messages that are sent through the XML Gateway to the Oracle Customer Data Hub; the Oracle Customer Data Hub has a set of rules that determines that the message comes from a trusted source before the system updates the information. Once the data is in the hub, the system utilizes PL/SQL through Oracle Data Librarian, which automatically executes duplicate record detection across the various business units. This greatly improves the reliability, consistency and security of customer data, complete with change audit trails, if needed. The cost savings attributed to securing customer data may not be calculated. However, if customer data is compromised on a grand scale, this can cost a company greatly in legal fees and recovery steps. Additionally, a negative public perception can be created when customer data is not secured properly.

**UNREALIZED POTENTIAL**

Despite the potential for achieving the benefits mentioned in the examples, many organizations have yet to realize the full value of the data they are gathering using a variety of technologies. Enterprises worldwide have spent billions of dollars on tools to help them get a handle on past customer behaviors so that they can proactively respond to customers’ future needs. They have built siloed landscapes dotted with ERP, customer relationship management (CRM) and sales force automation (SFA) systems; business intelligence (BI) and other analytics tools; data warehouses and data marts; and Web sites and extranets.

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**JOB PROFILE: CHIEF DATA QUALITY OFFICER**

Thanks to the focus on better data quality, new jobs are being created. The titles Chief Data-Quality Officer and Data Quality Manager are beginning to surface. As organizations work to boost data quality—particularly critical data related to their customers—they typically put a high-level executive in charge of boosting the quality of information.

A Chief Data-Quality Officer (or some similarly titled individual) is charged with managing a data-quality program for an organization. To be most effective, this job function must have the support of the CEO and other high-level executives. The person who fills the role works closely with the CIO or other senior-level IT executive, helping to coordinate efforts such as customer data integration and other programs to improve data quality.

Depending on the size of the organization, the top data-quality executive could direct a staff of data stewards or data-quality analysts responsible for ensuring data quality within individual divisions or departments. The data-quality chief would report regularly to the CIO, CFO, CEO or other senior executive, and perhaps even be included on executive strategy teams.

The need to ensure data quality is clear. Research reports in recent years show that many organizations have poor-quality data and are not satisfied with the quality and integrity of their customer data. Gartner, Inc., has estimated that more than 25 percent of critical data within Fortune 1000 businesses will continue to be inaccurate or incomplete through 2007. And the Data Warehousing Institute has estimated that companies lose more than $600 billion each year due to poor data.

Currently the title of Chief Data-Quality Officer has been established in only a handful of leading organizations. It is expected that the number of data quality management positions will only increase as we continue to operate in this connected and rapidly changing environment. As organizations begin to realize the value of having high-quality customer data, a Data-Quality Officer will become the norm, not the exception.
DATA QUALITY: A STRATEGIC IMPERATIVE

High-quality customer information that is timely and easy to access throughout the enterprise is a key to improving business success. Having intimate knowledge of customers, and their needs, enables enterprises to respond proactively and deliver the products and services customers want.

Organizations can get the right product or service to customers at the right time and at the right price. They can cater products and services to a customer's preferences. For example, they can use email as the primary communications mode if that's what a customer desires. And organizations can cross-market products or services, or improve the quality of customer care, based on the information gleaned from past transactions.

Solutions such as the Oracle Customer Data Hub are helping organizations achieve data quality. The Customer Data Hub is a fully integrated data management product that provides a unified source of high-quality customer data, giving enterprises a single view of customers. The hub centralizes, streamlines and enhances customer data, continuously synchronizing with all enterprise data sources including Web sites, legacy systems, data marts, accounting, sales and service.

Organizations can create an enterprise-wide “master customer identity” that serves all operational and analytical systems. The hub collects customer data from source applications through high-volume batch and real-time integration services. As data is collected, duplicates are identified, quality is verified, addresses are enriched, source system cross-references are maintained, and master blended records are created.

Many organizations today try to improve data quality by separately cleaning and enriching data at each source, exchanging records across systems, then reconciling the data again in a reporting repository or data mart. Oracle Customer Data Hub eliminates those redundancies and the associated costs by managing quality centrally. Clean data is provided to source applications and systems and used by employees to help improve customer service.

Oracle Customer Data Hub, which is part of the Oracle Fusion Middleware family of products, is based on open standards. Organizations can easily integrate the product with any third-party software as well as with any module of the Oracle E-Business Suite.

There are many potential benefits from implementing effective data quality management initiatives, not the least of which is more satisfied and loyal customers. Achieving data quality management should be a high priority for IT executives, and a strategic goal of organizations looking to optimize their business operations.

For more information on Oracle Customer Data Hub, visit www.oracle.com/datahub.

WHAT IS A CUSTOMER DATA MANAGEMENT HUB?

Enterprises are gathering unprecedented volumes of information about their customers, thanks to data-rich applications such as customer relationship management, enterprise resource planning and business intelligence. But this information doesn't deliver the maximum benefit to organizations if it is inconsistent, inaccurate and difficult to find or access.

Companies such as Oracle have developed customer data integration hubs to provide organizations with a single view of their customers. These software products provide a centralized, reconciled source of high-quality customer data. The systems continuously synchronize with all data sources within an organization to create the single customer view.

Organizations can use customer data hubs to identify, link and synchronize customer information across heterogeneous sources. As such, these products can serve as the centerpiece of an organization's customer data integration strategy.

The potential benefits of customer data integration hubs include improved accuracy of data, more useful analytics, increased employee productivity, more opportunities for revenue collection and generation, and better customer service and relationships. By deploying these products effectively, organizations can ensure that everyone in the enterprise has the same view of all customer-related information.