



## Life Sciences: Leveraging Customer Data for Commercial Success

As the healthcare buying process becomes increasingly complex, master data management solutions focused on customer relationships are critical for life sciences companies to excel.

### Executive Summary

The life sciences industry is undergoing unprecedented change. Healthcare spending in North America is expected to increase 4.9% annually through 2018.<sup>1</sup> This growth will be driven, in part, by expanded consumer access to healthcare in the U.S. through the 2010 Patient Protection and Affordable Care Act (ACA).<sup>2</sup>

Further, as in the rest of the world, the U.S. population is aging. Between 2012 and 2050, the number of people aged 65 or above is expected to double to 83.7 million.<sup>3</sup> This projected growth will significantly impact healthcare expenditures. For instance, spending on Medicare will increase substantially, growing 4.1% annually between 2014 and 2024, compared with 1% growth from 2010 to 2014.<sup>4</sup> The average healthcare cost per person will increase faster than the gross domestic product (GDP) on a per capita basis, and the proportion of elderly receiving Medicare will increase 50% by 2050.<sup>5</sup>

While this bodes well for life sciences companies, new customer dynamics are hindering the industry's ability to capitalize on growth oppor-

tunities. Life sciences organizations have traditionally relied on sales representatives to market their offerings, with commercial success largely dependent on their selling skills and physician relationships. This is now changing as industry players of all kinds push to make healthcare more affordable.

New stakeholders are increasingly gaining center stage in the purchasing process, redefining the value derived from pharmaceuticals companies' products and offerings. With payers and providers consumed by cost reduction and consumer wellness strategies, these new players are gaining influence over purchasing decisions. This means pharma companies, more than ever, must deeply understand the preferences and buying behaviors of all customers and retrain their sales reps to function more effectively in this new world.

A master data management (MDM) strategy that enables the organization to implement a customer data-focused solution is critical to the continued viability of life sciences organizations seeking to compete and thrive in this shifting landscape.



## Declining Physician Autonomy in the Healthcare Buying Process

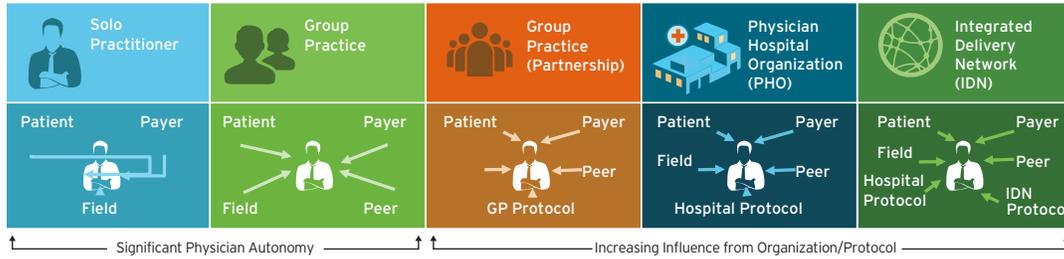


Figure 1

### Evolving Customer Landscape

The definition of “customer” has evolved from the individual prescriber to a complex set of stakeholders in the payer and provider organizations. Buying decisions are moving away from physician owners to stakeholders representing the hospital systems and integrated delivery network (IDN).

The physician’s role has changed dramatically, as he or she is now an IDN employee rather than a practice owner. Payer organizations are also exerting their influence on hospital system stakeholders involved in purchasing decisions. Thus, it is imperative for the sales force within life sciences companies to understand the buying process and behavior of a number of individuals in this complex marketplace (see Figure 1).

High-quality, relevant customer data and their relationships is the key asset needed by pharma organizations to stay ahead of emerging consumer and healthcare ecosystem

demands. Proper vetting of customer data for marketing and servicing (from acquisition and management, through syndication) can act as a significant differentiator for campaign management, commercial activities, omnichannel enablement, retention and account-based selling. Accomplishing this goal requires pharma companies to maintain updated and relevant information about healthcare organizations (HCO) and their affiliation with IDNs, group purchasing organizations (GPO), key decision-makers for purchases and key influencers of buying decisions.

What makes this possible is an MDM solution that distills data from various internal sources and enriches it with third-party industry data to create a powerful set of master data that can provide a 360-degree customer view and drive all processes and applications within life sciences organizations (see Figure 2).

### Achieving Customer Omniscience



Figure 2

## The Five Pillars of Customer MDM

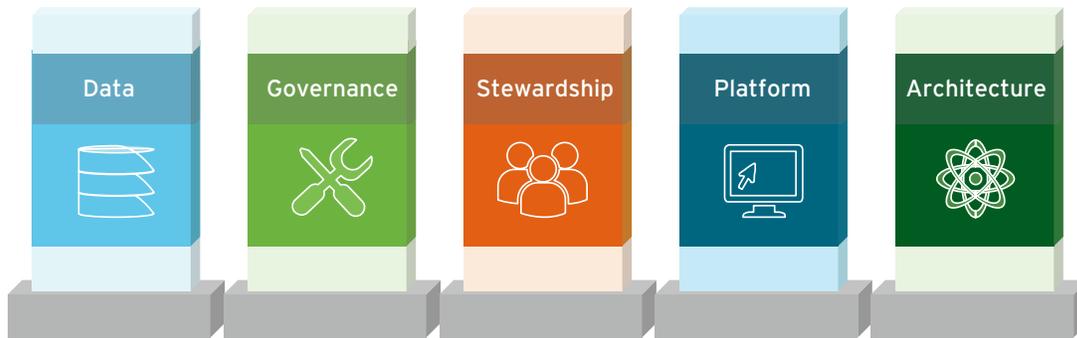


Figure 3

### Life Sciences Customer MDM Program

To enable a 360-degree view of the customer, life sciences organizations need an MDM strategy and solution to convert customer data from information into insights and foresights. A successful customer MDM program rests on five pillars that encompass people, process and technology (see Figure 3). Here is a closer look at each pillar:

#### Data

The most critical element of customer master is the data itself. Given the accelerating growth in data volume, variety and velocity, as well as the need to maintain integrity and veracity, the process of managing and maintaining data and its changes has become a complex task. Data can come from many sources - external or internal. Organizations require systems, partners and processes to help acquire an accurate, enriched copy of data.

- Data acquisition:** As a company's sales personnel and other staff collect customer data at different stages of a business transaction, the information is distributed across multiple systems and is not necessarily updated. To supplement the internal data, organizations need to procure data from third-party sources such as IMS, Cegedim, MedPro, etc., which requires them to define their data acquisition policy. Figure 4 outlines the key customer master data attributes within life sciences.
- Data quality:** Inaccurate and inconsistent customer data can heavily impact performance by making it difficult to run effective marketing campaigns, introducing reporting complexities, causing analytics and CRM systems to malfunction and hindering regulatory compliance. Figure 5 (see next page) outlines the key data quality challenges faced by life sciences organizations and their mitigation strategies.

#### Governance

Data governance is a disciplined and integrated approach to overseeing and managing enterprise data through formalized structures, policies, processes and systems. It creates a culture in which creating and maintaining high-quality data is a core organizational discipline. Data governance ensures that the right data is available for the right people and process at the right time. A sound program includes a governing body or council, a defined set of procedures and an execution plan (see Figure 6, page 5).

The initial step for implementing a data governance program involves defining the owners or custodians of the data assets in the enterprise. A policy must be developed that specifies who is accountable for various portions or aspects of the data, including its accuracy, accessibility, consistency, completeness and updating. Processes must be defined

### Customer MDM Data Sources

Type of Data	External Source	Internal Source
Prescriber Data	IMS/CMS/MedPro	CRM
Primary Specialty	CMS	CRM
Primary Address	CMS/Medpro/IMS	CRM
Sampling Eligibility	MedPro	
SLN Validation	MedPro	
CIA Compliance	CMS	
IDN Data	IMS/CMS/MedPro	CRM/ERP

Figure 4

## Data Quality Challenges and Mitigation Strategies

Data Quality Challenges	Examples	Business Impact	Typical Mitigation
<b>Incompleteness of Attributes</b>	<ul style="list-style-type: none"> <li>Missing value of attributes such as name components, address, partner function.</li> <li>HCO/IDN data provided without address.</li> </ul>	<ul style="list-style-type: none"> <li>Inaccurate sales crediting and incentive compensation.</li> <li>Poor customer targeting and promotions.</li> <li>Inaccurate report generation due to poor data quality.</li> </ul>	<ul style="list-style-type: none"> <li>Mandate at source.</li> <li>Enrich data via stewardship or third party.</li> </ul>
<b>Lack of Accuracy/Correctness</b>	<ul style="list-style-type: none"> <li>Invalid values for attributes such as address, name, etc.</li> <li>Conflicting information on industry-based IDs between internal and trusted sources.</li> <li>Duplicate customer records.</li> <li>Stale match rules.</li> </ul>	<ul style="list-style-type: none"> <li>Mapping of sales transactions to multiple accounts due to incorrect data.</li> <li>Missing classification for the entity (surgery, dental, hospital, warehouse, etc.) and difficulty identifying the right customers.</li> </ul>	<ul style="list-style-type: none"> <li>Standardize the data via data quality.</li> <li>Validate using third-party services.</li> <li>Use trust/survivorship techniques to override with valid values.</li> <li>Implement search-before-create processes.</li> <li>Tune match rules</li> </ul>
<b>Data Quality Challenges with Compliance Attributes</b>	<ul style="list-style-type: none"> <li>Name and primary business address of care organization as published by CMS needs to be included in the aggregate spend report.</li> </ul>	<ul style="list-style-type: none"> <li>Risk of compliance violation.</li> <li>Significant penalties.</li> </ul>	<ul style="list-style-type: none"> <li>Perform data cleansing and enrichment/scrubbing.</li> <li>Rely on third-party sources such as Medpro and CMS.</li> </ul>
<b>Affiliation-Related Data Quality Challenges</b>	<ul style="list-style-type: none"> <li>Null values of affiliation types.</li> <li>Outdated affiliation information.</li> <li>Latency in changes.</li> </ul>	<ul style="list-style-type: none"> <li>Impact on developing go-to-market strategy.</li> <li>Impact on key account management, account-based selling, contract optimization processes.</li> </ul>	<ul style="list-style-type: none"> <li>Periodic affiliation scrubbing and enrichment.</li> <li>Leverage a combination of third-party, stewardship and field inputs .</li> </ul>
<b>Third-Party Processes</b>	<ul style="list-style-type: none"> <li>Bulk of records updated on IMS side.</li> <li>With Cegedim, HCP records are invalidated if moved and then re-validated.</li> </ul>	<ul style="list-style-type: none"> <li>Churn in master data.</li> <li>Spike in processing end-of-day loads.</li> </ul>	<ul style="list-style-type: none"> <li>Thorough understanding of source processes.</li> <li>Threshold frameworks.</li> </ul>

Data profiling is key to identifying behavior and data patterns

Figure 5

for data storage, archival and backup, as well as protection from mishap, theft or attack. A set of standards and procedures must then be developed that defines how the data is to be used by authorized personnel. Finally, a set of controls and audit procedures must be put into place that ensures ongoing regulatory compliance.

The design of data governance models varies, depending on the business functions and scale of data management activities within the organization (see Figure 7, next page). Typical models include:

- **Global governance model with regional governance councils.** This model is driven by the technology and regulatory compliance

## The Pillars of Data Governance

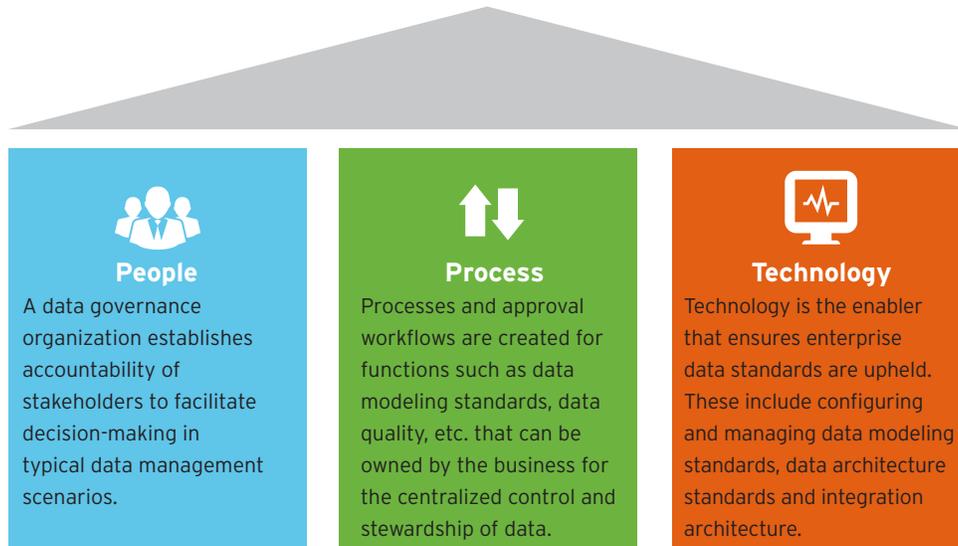


Figure 6

needs of localized operations or businesses. This model works best when key changes to the data model, list of values or core application affect the entire universe of stakeholders. Regional councils apply when a cluster of countries (i.e., Europe) share a common set of processes and procedures to manage and deploy. Regional councils are often empowered to act on their behalf and represent the countries responsible within a certain region. Country councils are optional and only apply when country-specific changes are very local and do not affect other regions.

- **Domain-centric governance models.** Domain-centric governance councils are driven by the governance requirements of myriad master data entities and differences in technology platforms leveraged by departments to master those entities. The different entity-specific councils are empowered to create and maintain entity-specific business rules across processes.

### Data Stewardship

Master data stewardship enforces the policies and accountabilities that help maintain master

## Governance Models

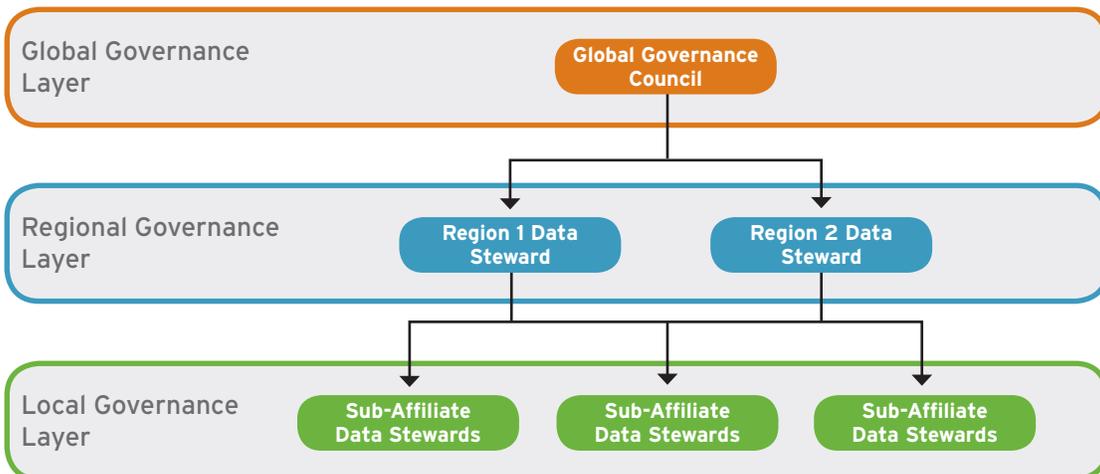


Figure 7

## The Business Impact of Effective Data Stewardship



Figure 8

data. It is critical to recognize that the data stewardship process and MDM services intersect. The two can be handled independently of each other; however, for truly breakthrough business value, the efforts must be carefully coordinated.

For effective stewardship, it is important to measure the quality of service and data steward-

ship throughput. The metric-driven SLA is a well-defined approach to monitor the data stewardship activities, in which the service imperatives are first defined and then followed by continuous service level validation and evaluation. The goal is to achieve operational service level monitoring and reporting (see Figure 8).

Healthcare professional (HCP) data quality issues result primarily from incorrect addresses and IDs. To ensure sales reps can stay in touch with doctors, hospitals and clinics, the data needs to be regularly updated. Second, unique IDs such as National Provider Identifier (NPI ID) and American Medical Association (AMA) that are crucial for identification are often incorrectly captured in the system. HCP stewards must be aware of these issues and implement processes to correct them.

A major challenge for HCOs results from address duplication issues across sites/departments. The addresses and departments of the HCOs must be properly mapped and mastered separately. The partner function attribute (sold to, ship to) must be classified properly for each HCO to enable proper delivery and invoicing. As a result, the HCO steward needs the expertise to investigate and deal with such issues.

## Comparing Customer MDM Deployment Models

Technology Model		Benefits/Concerns
Data as a Service		<p><b>Benefits</b></p> <ul style="list-style-type: none"> <li>• Faster time to market.</li> <li>• Low initial investment through pay-as-you-go model.</li> <li>• High scalability.</li> <li>• Access to up-to-date and complete data.</li> </ul> <p><b>Concerns</b></p> <ul style="list-style-type: none"> <li>• Need to operationalize.</li> <li>• Low data privacy.</li> <li>• High dependence on single vendor.</li> </ul>
Software as a Service		<p><b>Benefits</b></p> <ul style="list-style-type: none"> <li>• Low dependency on single data vendors for data requirements.</li> <li>• Faster time to market and low initial investment.</li> <li>• High scalability.</li> <li>• Increased ability for cross-enterprise sharing.</li> </ul> <p><b>Concerns</b></p> <ul style="list-style-type: none"> <li>• Risk of downtime causing business disruption.</li> <li>• Low data privacy; security issues.</li> </ul>
On-Premise In-House		<p><b>Benefits</b></p> <ul style="list-style-type: none"> <li>• High reliability and control.</li> <li>• High customizability as per requirements.</li> <li>• High privacy of data.</li> <li>• No dependency on single data vendor.</li> </ul> <p><b>Concerns</b></p> <ul style="list-style-type: none"> <li>• High initial investment and slow time to market.</li> <li>• Low scalability.</li> </ul>

Figure 9

### Platform

The underlying platform of a master data solution is extremely important, given the organization's need to contend with mounting data volumes, data security challenges and delivery of critical services, etc. As result, the platform of choice will differ for each life sciences organization. Given their different requirements, each organization must determine the best fit based on budget, data volume, availability of resources and integration requirements. Three typical deployment options include:

## Data as a service keeps the data assets clean, enriched, de-duplicated and reliable, without having to own or maintain a software system for this purpose.

- **Data-as-a-Service (DaaS):** This allows the organization to source its customer data needs to an experienced third party to allow it to concentrate on its core competencies and not worry about the operational aspects of the customer data. DaaS keeps the data assets clean, enriched, de-duplicated and reliable, without having to own or maintain a software system for this purpose.
- **SaaS:** In a cloud deployment option, the MDM solution is hosted off-premise, through virtual data center services. The customer can have full access to the data through powerful interfaces and robust service layers. This op-

tion helps IT reduce the initial investment in infrastructure setup and maintenance. Most leading MDM vendors today offer cloud-based deployment options.

Some organizations also prefer a hybrid cloud deployment, which uses a combination of on-premise and cloud (private and public) platforms that work seamlessly. The client can deploy on-premise to host sensitive or critical workloads, while using cloud to host less critical resources.

- **On-premise:** This type of deployment works well for organizations seeking a local solution inside the client IT network. The organization gets full control over all elements of the solution, including scheduling flexibility, data localization and direct access to the database. However, scalability and expansion need to be planned properly.

Figure 9 (previous page) compares the three deployment models in terms of their associated benefits and/or concerns.

### Architecture

Organizations need to design the architecture of the MDM solution involving the relevant source and target systems. The solution should provide an industry-specific data model and an intuitive interface for data stewards. Figure 10 depicts a sample reference architecture.

## Reference Architecture for Customer MDM Implementation

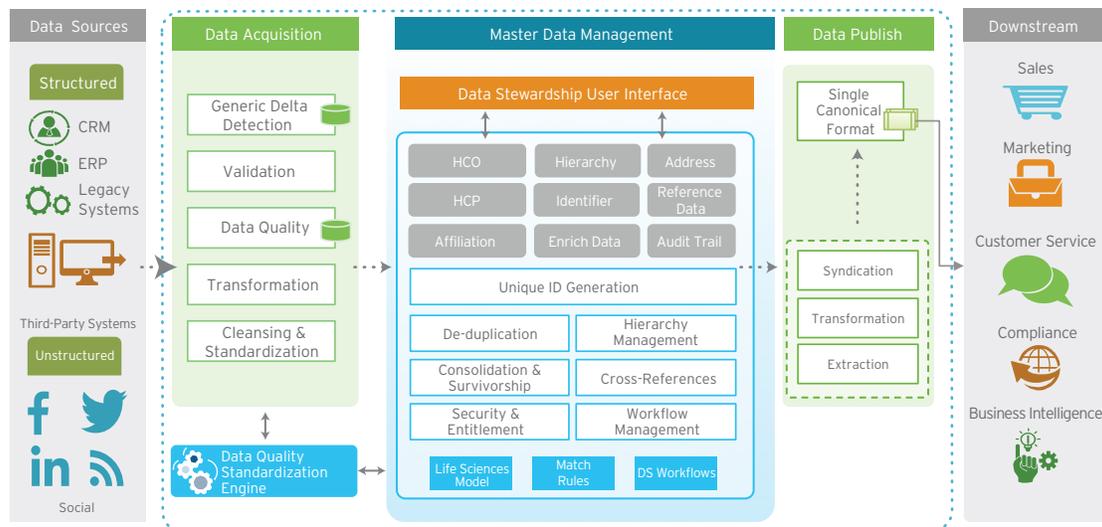


Figure 10

## Quick Take

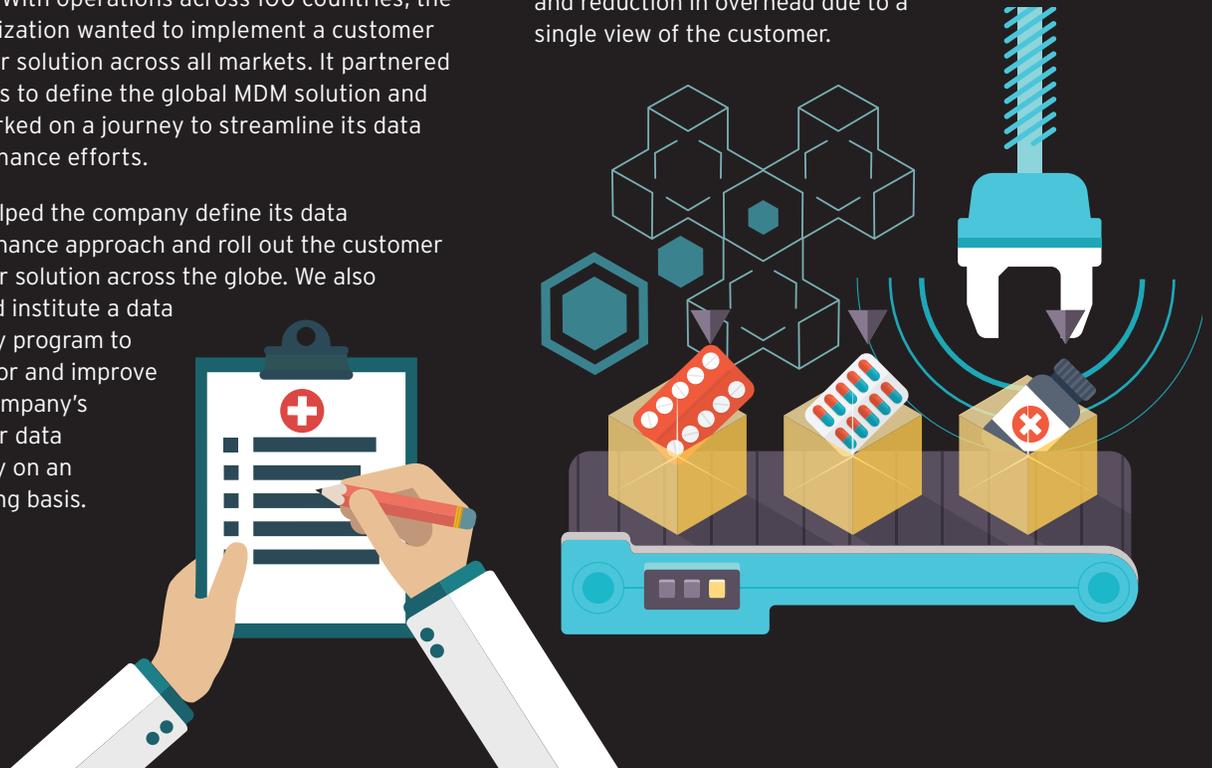
### Transforming a Global Pharma Using a Customer Master Solution

A global top-10 pharmaceuticals company needed to enhance its customer service capabilities by providing a seamless experience across multiple channels. To achieve this objective, the organization needed to better understand its customers and transform all available customer information to provide a single source of the truth. With operations across 100 countries, the organization wanted to implement a customer master solution across all markets. It partnered with us to define the global MDM solution and embarked on a journey to streamline its data governance efforts.

We helped the company define its data governance approach and roll out the customer master solution across the globe. We also helped institute a data quality program to monitor and improve the company's master data quality on an ongoing basis.

Results included:

- Improved customer service levels and an increase in revenue through the use of a single source of truth for customer master data.
- Improved multi-channel integration and reduction in overhead due to a single view of the customer.



### Moving Forward

Life sciences organizations need to critically review the key success factors for their sales and marketing operations, and devise an information strategy to meet key business objectives. Based on the current state of their data management practices, we suggest the following:

- Institute a data quality program and monitor industry standards.

- Implement the right customer MDM solution for the organization's unique needs based on the five pillars.
- Institute a data governance mechanism to ensure ongoing adherence and improvement in data quality,

A well-crafted customer MDM solution can prove to be the key differentiator for any life sciences company in today's information-driven age.

## About the Authors

Naveen Sharma is Cognizant's Enterprise Data Management Practice Lead, a group within Cognizant's Analytics and Information Management Practice. He has more than 18 years of software development and data management experience, 14 of which have been focused on EDM. Naveen specializes in helping customers define their MDM roadmap and strategy and contributes to Cognizant's creation of industry-leading MDM solutions. He can be reached at [Naveen.Sharma@cognizant.com](mailto:Naveen.Sharma@cognizant.com) | [Linkedin: http://www.linkedin.com/in/4naveen](http://www.linkedin.com/in/4naveen).

Ranjit Agarwal is an Associate Director with Cognizant's Enterprise Data Management Practice, a group within Cognizant's Analytics and Information Management Practice. He has more than 14 years of experience in consulting with large global corporations. Ranjit specializes in helping customers define their data governance strategy and MDM roadmap. He can be reached at [Ranjit.Agarwal@cognizant.com](mailto:Ranjit.Agarwal@cognizant.com) | [Linkedin: https://in.linkedin.com/in/ranjit-agarwal-0313336](https://in.linkedin.com/in/ranjit-agarwal-0313336).

## Footnotes

- <sup>1</sup> "Global Outlook: Healthcare," The Economist Intelligence Unit, March 2014, [http://pages.eiu.com/rs/eiu2/images/GlobalOutlook\\_Healthcare.pdf](http://pages.eiu.com/rs/eiu2/images/GlobalOutlook_Healthcare.pdf).
- <sup>2</sup> "World Industry Outlook: Healthcare and Pharmaceuticals," The Economist Intelligence Unit, May 2014.
- <sup>3</sup> "An Aging Nation: The Older Population in the United States," U.S. Census Bureau, May 2014, <http://www.census.gov/library/publications/2014/demo/p25-1140.html>.
- <sup>4</sup> "The Facts on Medicare Spending and Financing," The Henry J. Kaiser Family Foundation, July 2015, <http://kff.org/medicare/fact-sheet/medicare-spending-and-financing-fact-sheet/>.
- <sup>5</sup> "Population Ageing in the United States of America: Implications for Public Programmes," *International Journal of Epidemiology*, Vol 31, Issue 4, 2002, <http://ije.oxfordjournals.org/content/31/4/776.full>.

---

## About Cognizant

Cognizant (NASDAQ: CTSH) is a leading provider of information technology, consulting, and business process outsourcing services, dedicated to helping the world's leading companies build stronger businesses. Headquartered in Teaneck, New Jersey (U.S.), Cognizant combines a passion for client satisfaction, technology innovation, deep industry and business process expertise, and a global, collaborative workforce that embodies the future of work. With over 100 development and delivery centers worldwide and approximately 219,300 employees as of September 30, 2015, Cognizant is a member of the NASDAQ-100, the S&P 500, the Forbes Global 2000, and the Fortune 500 and is ranked among the top performing and fastest growing companies in the world. Visit us online at [www.cognizant.com](http://www.cognizant.com) or follow us on Twitter: Cognizant.



**World Headquarters**  
500 Frank W. Burr Blvd.  
Teaneck, NJ 07666 USA  
Phone: +1 201 801 0233  
Fax: +1 201 801 0243  
Toll Free: +1 888 937 3277  
Email: [inquiry@cognizant.com](mailto:inquiry@cognizant.com)

**European Headquarters**  
1 Kingdom Street  
Paddington Central  
London W2 6BD  
Phone: +44 (0) 20 7297 7600  
Fax: +44 (0) 20 7121 0102  
Email: [infouk@cognizant.com](mailto:infouk@cognizant.com)

**India Operations Headquarters**  
#5/535, Old Mahabalipuram Road  
Okkiyam Pettai, Thoraipakkam  
Chennai, 600 096 India  
Phone: +91 (0) 44 4209 6000  
Fax: +91 (0) 44 4209 6060  
Email: [inquiryindia@cognizant.com](mailto:inquiryindia@cognizant.com)