



UNDERSTANDING AND OPTIMIZING YOUR FIRM'S DATA MANAGEMENT CAPABILITIES USING MATURITY MODELS

Report Highlights

- Introduces and provides an overview of LakeFrontData's comprehensive Data Management Capability Maturity Model (DMCMM).
 - Designed specifically to address the Data Management life cycle, it is used to quantify the capabilities and readiness of organizations to successfully implement, integrate and operate their data management systems with consuming business applications.
 - Furthermore, it provides a framework that allows data management practitioners and leaders to identify, prioritize and address short comings / gaps in order to optimize your firm's data management capabilities to meet the needs of the business.
- Analysis – explains how firms should proceed in attempting to optimize their capabilities to achieve data management maturity.
 - Explains that there is no "one-size fits all" maturity level and outlines ways in which firms should proceed in attempting to optimize their capabilities considering size, focus, core expertise, business requirements and constraints.
 - Uses examples to illustrate that different capability levels are appropriate for different business requirements.
 - How not to use maturity models and thereby avoid overreaching and failing to achieve the optimal capabilities and maturity for the organization.

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I. EXECUTIVE SUMMARY

Financial Institutions are continuously striving to improve their technology, operations and business processes with the hopes of positively impacting the firm's revenue, risk exposure and/or cost base. In fact, to aid this effort, many institutions use 'maturity models' to help benchmark their current capabilities and plan the target state for their front line business and supporting functions.

Data management has not escaped this analysis. Several maturity models exist for this discipline, including one developed by LakeFront (Appendix A). In fact, a majority of these models are naturally similar in describing both (i) the various categories/disciplines which should be closely examined / monitored and (ii) the level of maturity and characteristics which best describe each.

Once in hand though; how should this information be interpreted and used?

The problem is that most of these models fall short in three areas:

1. They don't explain the ways which firms should proceed in attempting to optimize their capabilities to achieve data management maturity.
2. There is minimal consideration given to a financial institutions size, focus, core expertise, business requirements and constraints, such as budget and politics.
3. Lastly, the target state varies by firm, there is no "one-size fits all" Maturity Level, often resulting in firms overreaching and or failing to achieve the optimal capabilities and maturity that fits their organization.

This paper will explore LakeFront's approach, which includes a close examination of a financial institutions size, focus, core expertise, business requirements and service levels combined with a reasonable expectation of the data management budget. The result is a tailored capability level, which will allow firms to optimize the key criteria to effectively manage all aspects of data.



II. OVERVIEW - DATA MANAGEMENT MATURITY MODEL

Background on Maturity Models

Maturity models are very helpful in improving the effectiveness of business and management processes. The most noteworthy being the software development maturity model, which is used to develop and refine an organization's software development process based on the Software Engineering Institute's (SEI) Capability Maturity Model Integration (CMMI), which is the successor to the 1984, the Capability Maturity Model (CMM).

Overview of LakeFront's Data Management Capability Maturity Model (DMCMM)

Implementing and operating EDM systems and processes can be challenging. To be successful, financial institutions need to objectively assess the maturity of their capabilities and chart a course of incremental improvements aligned with their business priorities.

LakeFront's Data Management Capability Maturity Model is both comprehensive and designed specifically for Data Management. It is used to quantify the capabilities and readiness of an organization to successfully implement, integrate and operate their data management systems with consuming business applications. The Data Management Capability Maturity Model (DMCMM) is also used to provide gap analysis to support the following:

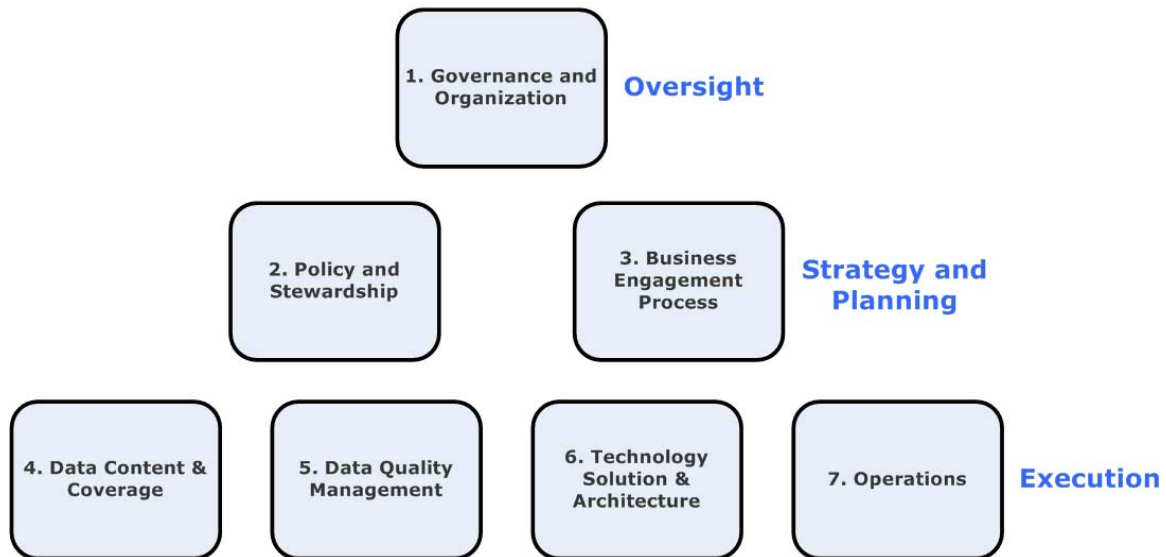
- Strategy development and refinement
- Development and implementation roadmaps
- Determine if data initiatives are supported with the necessary capabilities in development, data quality and operations
- Assessment and eventual "right-sizing" of capabilities and resources for funding
- Tracking progress and continuous improvement



LakeFront's DMCMM has two key dimensions (as do most industry maturity models):

- a) Seven Capability areas, and
- b) Five stages of Maturity for each of these capabilities

Seven Data Management Capabilities



The seven capability areas or disciplines are described as follows:

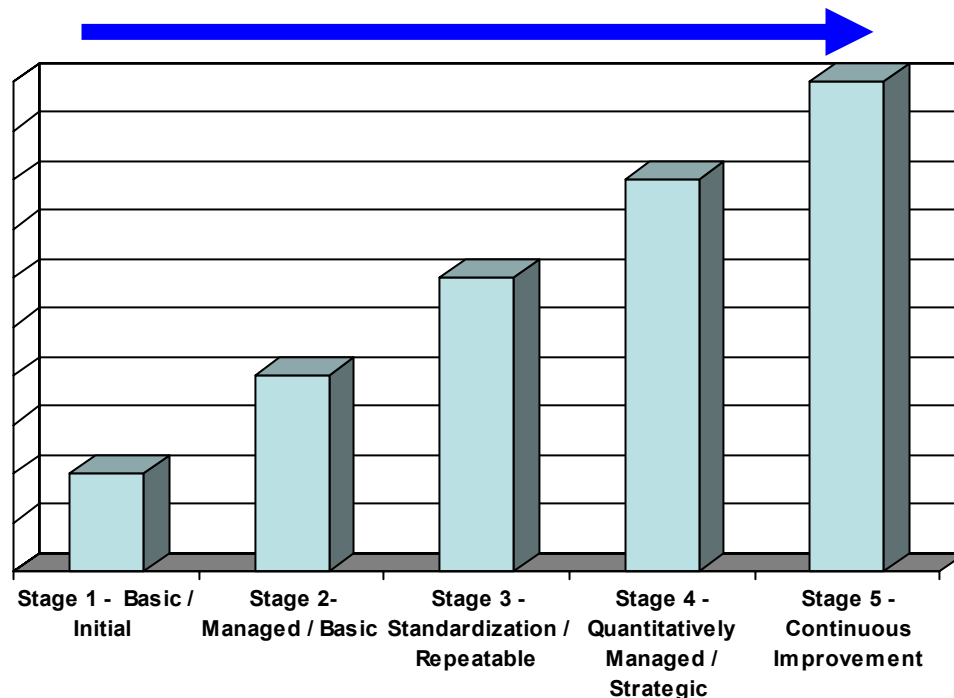
- 1. Governance and Organization** – *providing the sponsorship, leadership, resources and structure*
- 2. Policy and Stewardship** – *providing a defined method of working supported with Service Levels, Metrics and Benchmarks*
- 3. Business Engagement Process** – *to engage, understand and deliver the client business solution*
- 4. Data Content & Coverage** – *information required as part of the solution*
- 5. Data Quality Management** – *to ensure quality data (sometimes part of Operations)*
- 6. Technology Solution & Architecture** – *to support data acquisition, management, distribution and integration with consumer systems*
- 7. Operations** – *the infrastructure facilities, systems and people to operate a quality information service*

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Furthermore, there are five maturity stages, ranging from least mature/basic, Stage 1, to fully mature with continuous improvement, Stage 5.

Five progressive stages of increasing Data Management Capability and maturity



Data Management is a systematic approach to automating the collection, quality control, storage and distribution of financial reference and market data to downstream business systems using a set of processes, systems and people to manage the data life cycle.

Enterprise Data Management (EDM) is a centralized approach to managing the content, software, systems and people needed to meet the information needs of the enterprise – leveraging process, standards, metrics and expertise (also referred to as MDM/CDM for Master/Centralized Data management).

- Timely, accurate, complete data is vital to financial services – for risk management, trading, compliance and customer reporting
- Includes, daily / historical pricing, reference data, corporate actions for multiple asset classes covering 100,000 to 3 million financial instruments, as well as, Legal Entity and Counterparty.

Data Stewardship is a quality control role or discipline designed to provide custodial care of data and is focused on improving data quality to the level required by the business.

Governance and Organization is the mechanism to ensure responsibility and accountability between business, IT and Operations, and the need to preside over data at different levels of management across the institution to meet the needs of the business.

Data Architecture is the design of data systems that enable data availability and distribution to appropriate business applications and systems.

Data Quality Management process and methodology to measure, improve, and certify the quality of data.

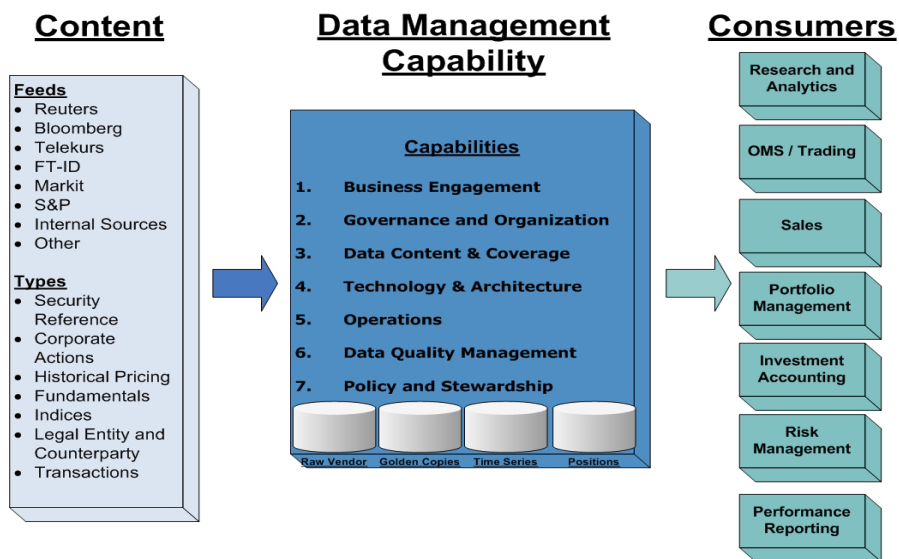
The focus of this paper is on financial market and reference data.



III. UNDERSTANDING AND OPTIMIZING DATA MANAGEMENT CAPABILITIES USING A DATA MANAGEMENT MATURITY MODEL

As mentioned above, the real benefit to your firm arises when you are able to effectively leverage and utilize your chosen Maturity Model – in other words, taking the theoretical and implementing it in a practical manner. The Maturity Model can be considered a ‘blueprint’ in that it gives you guidance as to what capabilities should be considered when analyzing your data management assets. However, firms must be cautioned to ensure they don’t become fixated on a ‘one size fits all’ target or ideal state. Even though the Maturity Model is a blueprint, its application must often be tailored to suit the unique characteristics of your firm: including business requirements, size, expertise and budgets.

Typical scope of Data Management Solutions



Where to start? What to do first?

Our recommended approach would be to initially identify and assess your business priorities and primary pain points when it comes to data (pain can arise due to the inability to satisfy and address both **current** and **future** business requirements due to lack of capability). At all stages of maturity, this effort requires and benefits from a collaborative investigation/effort among key stakeholders including business, IT and operations. As is often the case, the responses you collect will be varied and in some instances, not entirely obvious how they map into your existing capabilities, requiring synthesis and validation with key stakeholders.



This capability “assessment” or evaluation is an exercise that many firms have undertaken for various aspects of their business, including data management. Using a comprehensive and industry accepted maturity model, a firm can produce a clear summary, or scorecard, illustrating how your data management assets and capabilities stack up and need to be developed. This information combined with business priorities and your list of primary pain points will help you decide what capabilities to improve and enhance, in priority sequence. However, as mentioned above, ensure to include your firm’s unique characteristics, business focus and resource limitations so as not to concentrate on the wrong areas.

For example, if your business is hampered due to insufficient data structures and data relationships; you may need to enhance your data modeling capabilities; alternatively the problem may be caused by the use of a less than comprehensive data product. The trick is to validate this information and, categorize within the context of your maturity model. The final step would be to determine whether there is, or potentially could be, a direct impact on your business if not addressed. The latter exercise will allow you to prioritize and decide where to focus your efforts when leveraging the Maturity Model.

Capability Assessment

How significant and widespread are your problems? The answer to this will help address the issue of whether you should either (i) proceed with a full evaluation of your data management assets, across all seven categories of the maturity model, or (ii) focus on evaluating, and eventually improving, a smaller sub-set of capabilities. For example, we have seen cases where a firm attempts to solve their data quality issues through an enhancement of their technology only. As most can attest, improvements in technology for managing data are important, but without the efforts around data stewardship, data workflow capabilities and governance, the longer term goals are unlikely to be met. In the case of either (i) or (ii) above, a more complete Capability Assessment to first evaluate your firm’s current and future capabilities within the Maturity Model is required.



Data Management Technology

Technology is a good example where firms will often try to assemble a much more sophisticated solution than their needs dictate. Whether you build or buy, there are certain fundamental components that should be encompassed by your technology: feed handling, normalization, storage, cleansing/validation and retrieval/distribution, to name a few. The complexity and reliability of these, however, will be dictated by your firm's specific requirements.

It is essential that you consider your firm's unique business environment: Are you concerned with servicing multiple business lines vs. a single department? Are you tasked with managing both pricing and reference data? Is historical time series data a key requirement? Are multiple feeds required for the same data type? Does your security master consist of a limited 'securities of interest' list or a broad, more all inclusive, universe of instruments? These are just a handful of important questions that must be considered when enhancing your data management technology solution and capabilities.

Relating this to the DMCMM, some firms may want to strive for a higher, more 'strategic' maturity level (for technology) due to the complexity and mission critical nature of the business lines supported (e.g. an investment bank supporting trading, risk, back office, etc. from a *centralized* data management platform). In these instances, technology solutions must be carefully selected to ensure supportability of current requirements with the assurance that future scalability needs can also be addressed, with or without extensions/enhancements.

For other firms, such as a smaller asset manager, the focus may be more one-dimensional for a research department, which may also be supported by the chosen *centralized* data management platform. In most cases, Research's instrument universe and content requirements are large; but the solution typically does not need to handle such things as matching multiple feeds, complex data cleansing rules and strict entitlement controls. Hence a less sophisticated vendor solution is often sufficient to address Research requirements for the business and thus a lower technology capability maturity level may be adequate for this type of business. Obviously, the cost for this type of solution is much less than the Centralized Data Management Platform previously outlined.



Data Quality Management and Content

Within many financial institutions, data quality (loosely defined as the completeness, timeliness, accuracy and consistency of data) is often a bone of contention for end consuming business units. Statements such as: “I wish our firm would reduce the number of errors in our reference data” or “I cannot depend upon the delivery of vendor product X for my analytics” are commonplace in many firms. These types of ‘complaints’, some of which are quite legitimate and can significantly affect the business, often lead to the commencement of projects to improve the quality of a firm’s reference and pricing data (often without addressing the root causes).

Improving a firm’s data quality is, in our opinion, a much more difficult task than say, improving one’s data management technology. There are no vendors in the marketplace offering an out of the box data solution and suite of processes which addresses the wide range of ‘bad data’ issues that firms have to deal with. It’s very much an incremental operational process, supported by data quality workflow tools, high-quality measurement and metrics, which facilitates the reduction of errors and the improvement in consistency and timeliness of your data.

The DMCM is an important ingredient in this process. It allows you to initially gauge your maturity, take corrective action and track your improvements over time. However, as with the technology example given above, the level of data quality across firms, or across business units within firm, will vary – and hence so will the level of data quality management maturity. This is an important understanding, as the cost of improving your data quality can be significant; with the costs (for staff, additional sources, etc.) sometimes outweighing the benefits.

To help illustrate, if one examines the needs of the data content and quality requirements for Research vs. Trading, the results will be vastly different. Research typically consumes large amount of data across many data types (e.g. pricing, reference, fundamentals, estimates, indices, ratings, etc.) and asset classes. Although errors in data are problematic, there tends to be more emphasis on consistency then accuracy. The large quantity of data makes it cost prohibitive to validate and cleanse the entire universe and hence Research will rely upon Data Vendor Quality, augmented with manual (or semi-automatic) intervention based



upon a set of pre-defined cleansing mechanisms that are specific to their requirements (e.g. automatically forward filling missing data or manually adjusting prices for reporting purposes). Incorrect data is problematic, but its affects will not typically cause a firm to loose significant amounts of money.

Trading, on the other hand, requires much more care and focus be put into the management of data quality. For example, the timeliness of pre-market corporate actions is very important while the accuracy and completeness of security identifiers needs to be at a very high level. In some cases, multiple sources must be used to either validate the accuracy of data or to supplement the overall content. The universe and data attribute set for trading is typically much less than that for Research above; and hence the costs associated with an enhanced level of data quality, or maturity, is potentially much more reasonable and is justified given the higher financial cost of error prone data on the Trading business.

To ensure a high level of data quality for functions such as Trading, greater focus and importance must be given to data quality. Data quality standards are well documented while quality metrics are frequently monitored. In addition, Service Levels between the business and the data quality organization are established to ensure that the business needs are well understood and that there are proper procedures in place to handle problematic issues. In short, the maturity of a firm's data quality management capabilities often need to be more advanced to handle the needs of activities such as Trading vs. those in Research.

In summary, the DMCMM is an extremely useful and powerful tool for firms wanting to evaluate and ultimately improve their data management capabilities. A key factor to maximizing the benefit of the DMCMM, however, is to fully understand and take into account the unique requirements of your organization and your end consuming businesses/systems; thus enabling you to optimize the maturity level of your data management assets.



APPENDIX – DATA MANAGEMENT CAPABILITY MATURITY MODEL

Scope of Data Management Capability Maturity Model

The high-level scope of the seven capability areas making up LakeFront’s Data Management Capability Maturity Mode are outlined below:

1. Governance and Organization.

- The responsibility and accountability between business, IT and Operations, and the need to govern data at different levels of management across the institution, including:
 - Senior Management Sponsorship
 - Leadership, Strategy and Tactical Execution to address Business Driven Priorities
 - Governance and Accountability model
 - Executive Governance
 - Operating & Execution Oversight
 - Organization design and alignment
 - Roles and Responsibilities
 - Funding

2. Policy and Stewardship

- Vendor Management policy
- Data Contacts and Purchasing
- Data Standards
- Data Quality Policy
- Information Access and Security
- Audit Process

3. Business Engagement Process

- Interaction to understand business requirements to design / execute Data Strategy that meets the needs of the business to support:
 - Business Driven Priorities
 - Business Sponsored Projects
 - Client Supplier relationship
 - Data Stewardship and Data Quality

4. Data Content & Coverage

- Reference
- Pricing
- Historical
- Indices, Ratings, Fundamentals
- Real-time
- Security Identifiers
- Corporate Actions
- Transactions
- Positions
- Client
- Sales/Contacts
- Meta Data



5. Data Quality Management

- Services and tools to measure, improve, and certify the data quality
 - Data Services Support Team
 - Data Quality Control / Assurance (QC/QA) with Audit
 - Workflow and Business rules for data quality management
 - Data Standards, Definitions and Classifications
 - Data Mapping, Cross-References, Linkages and Hierarchies
 - Meta Data Management
 - Defined Internal Service Level Agreements
 - Monitor external Data Vendor SLA's
 - Reporting & Benchmarking

6. Technology Solution & Architecture (acquisition thru distribution)

- Acquisition of Data Content (internal and external sources)
- Data Translation, Data Model and Storage
- Data Management Exception Workflow
 - Security Matching and Cross Reference (matching)
 - Data Quality Workflow / Reporting
 - Business Rules for Data Quality
 - Data Clean up Tools
 - Meta Data Management
 - Data arbitration / consolidation
- Distribution
 - Entitlement Controls
 - Messaging
 - Web Services
 - SQL RDBMS Data Marts
 - Files
- Application and User Integration
 - Front, back, middle (research, trading, accounting, risk)
- Reporting
 - Packaged Reports / Views
 - Ad hoc inquiry and reporting
 - Reporting Portal

7. Operations

- Production Control to ensure that all inbound/outbound data is available
- Support all users / groups / control entitlements
- Links to Development (2nd level support)
- Hosting
- Capacity Management (H/W, Networks and S/W)
- Vendor / Supplier Management
- System / Disaster Recovery
- Business Continuity



Appendix - Data Management Capability Maturity Model (DMCMM) Matrix

Disciplines	Stage 1 Basic / Initial	Stage 2 Managed / Basic	Stage 3 Standardization / Repeatable	Stage 4 Quantitatively Managed/ Strategic	Stage 5 Continuous Improvement)
1. Governance and Organization	<p>No concept of data management as separate discipline, considered to be part of IT (Information Technology).</p> <p>Therefore IT (along with Operations) is blamed for data issues by the business consumers of data and their management.</p> <p>Characterized by not knowing data problems exist until they become critical.</p>	<p>Value of Data Management is recognized, but capabilities are under developed and under funded.</p> <p>Characterized by a tactical decentralized business unit funded approach (e.g., Cleanup projects).</p>	<p>Some collaboration and common data solutions and data standards, typically informal via cross functional teams.</p> <p>Characterized by quality improvement programs with more support and funding from management for data projects.</p>	<p>Formal Data Management Office established involving business and operational stakeholders supported by senior management.</p> <p>Characterized by:</p> <ul style="list-style-type: none"> Executive level support for short and long term initiatives Involved stakeholders from multiple business units and support functions (Technology & Operations) A well articulated strategy and plan to service end users now, and in the future Secure appropriate level of funding for success 	<p>Well defined Enterprise governance and data stewardship structures, roles and responsibilities.</p> <p>Data management a critical component of the overall business.</p>
2. Policy and Stewardship	<p>There are no formal data polices or data stewardship</p>	<p>Some data policies defined to address production and operational issues identified by the business but most action is ad-</p>	<p>More data policies, data definitions, standards and information catalogues published.</p>	<p>Firm or Enterprise-wide data policies and data stewardship established.</p> <p>Data-related policies are clearly articulated and</p>	<p>The firm recognizes the value and benefit of Data Policy and Stewardship spanning key stakeholders (business, operations, technology</p>



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Disciplines	Stage 1 Basic / Initial	Stage 2 Managed / Basic	Stage 3 Standardization / Repeatable	Stage 4 Quantitatively Managed/ Strategic	Stage 5 Continuous Improvement)
		hoc.		become part of the corporate culture encompassing the firm's data objectives.	and data). Continuous discussion and improvements are made via a strong Data Stewardship function.
3. Business Engagement Process	<p>Inadequate ad hoc engagement approach with the business regarding Data. No defined role or engagement model.</p> <p>Lack of engagement process / capability produces inadequate /incomplete "requirements" and discovery of data issues during projects that often result in rework, delays and increased costs.</p>	<p>Engagement and requirements gathering process is introduced with a limited focus on obtaining silo business unit/department project requirements.</p> <p>Even though an improvement, the narrow focus and incomplete stakeholder involvement often results in ongoing scope creep and misunderstandings on the project requirements, deliverables and schedule.</p>	<p>A collaborative business engagement and requirements gathering process is introduced for project teams to work with the business clients and understand their requirements and deliverables.</p> <p>This collaborative business engagement process results in data issues being better understood and addressed upfront and thereby improving project success.</p>	<p>A more comprehensive business engagement process with defined roles and responsibilities for ALL stakeholders involved, including the business, technology & architecture, operations and data.</p> <p>Senior management support for Governance an improved business engagement process, results in data issues being understood and addressed and thereby improves project success in terms of deliverables, quality, costs and schedule. Metrics are developed to track progress and provide transparency and accountability.</p>	<p>With an effective defined business engagement process the focus is on future (and current) requirements and strategy to understand / address key business priorities:</p> <ul style="list-style-type: none"> • Increased revenue • Regulatory Requirements • Risk Mitigation • Cost <p>Data management becomes a critical component of the overall business.</p>
4. Data Content & Coverage	Narrowly focused on content that addresses the data requirements for specific application	Definition of data structures, use of data vendor models, some matching and cross referencing and a	Wider focus with more collaboration to support the data needs of multiple business and application areas, with an increased	Move to Multiple Version of the Truth (MVT) or multiple Golden Copies to support more granular business specific data	Agility with improved quality, the ongoing ability to quickly and effectively address the new and changing data



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Disciplines	Stage 1 Basic / Initial	Stage 2 Managed / Basic	Stage 3 Standardization / Repeatable	Stage 4 Quantitatively Managed/ Strategic	Stage 5 Continuous Improvement)
	areas via tactical vendor solutions or as part of larger IT projects. Acquire and store data in small databases and make files available for specific systems.	recognition that a level of data support is required to successfully address the needs of the business (e.g., corporate action processing).	focus on higher quality data from multiple data vendors and sources. Use of a data model to represent and manage the increasingly complex data and their inter relationships. An appreciation of the benefits of improved data quality and data consistency to effectively support multiple business groups, sometimes characterized by the term "Golden Copy" for common shared content. Use of data consolidation/aggregation. Matching and cross referencing security identifiers to allow access via multiple keys.	requirements and move away from a "one-size fits all" data content strategy. A high level of data integration, cross-referencing and search ability across multiple data types and asset types to support the current and future business requirements. Multi-currency support. All or most fields are searchable and can be used to filter, access and manipulate content.	requirements to meet the needs of the business.
5. Data Quality Management	<p>"Data" quality unknown. Not owned, IT is the default owner.</p> <p>Characterized by reactive correction of erroneous data.</p> <p>Problems are addressed in a sequential manner, typically with unsatisfactory resolution.</p>	<p>A data quality role or plan is defined but the focus is on fixing "bad" data.</p> <p>Characterized by Data Steward and Data Analyst cleanup teams and projects, but without addressing the root causes.</p>	<p>Data quality standards and organization are defined allowing data quality to be assessed.</p> <p>Data quality exception reporting and workflow tools utilized to detect and correct suspect data. Meta Data defined, used and maintained. Some root causes are addressed; 'work-around' fixes developed and improved data quality can be</p>	<p>Data Quality role elevated within organization, and often established as a separate centralized service group. The focus is on proactive action and quality assurance working closely with the business users.</p> <p>Root causes addressed as part of the development life cycle.</p> <p>Metrics added to Service</p>	<p>Data Quality supported with Governance is part of the firm's culture.</p> <p>Improved data quality via proactive preventative action is the focus.</p> <p>Consuming clients are satisfied that the level of data quality actually meets the needs of the business.</p>



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Disciplines	Stage 1 Basic / Initial	Stage 2 Managed / Basic	Stage 3 Standardization / Repeatable	Stage 4 Quantitatively Managed/ Strategic	Stage 5 Continuous Improvement)
			demonstrated to downstream consumers. Service Levels introduced	Levels.	
6. Technology Solution & Architecture	Use of ETL (Extract, transform, load) as the primary data technology tool with some use of vendor database products to deliver single sourced data to a specific application, often in the form of flat files (fixed format and CSV).	Extended use of vendor database products to store, manage and report data. Some data cleansing capability but often very basic validation rules implemented. Data Model often based on an aggregation of vendor source fields / attributes and their definition. Data access is often allowed directly to the database.	Introduction of data quality management tools and workflow to manage and improve data quality. Use of business rules to report exceptions to be investigated and verified / corrected. Corporate Action processing capabilities added as appropriate. Meta data defined, used and maintained. Use of comprehensive and extendible Data model covering major data and asset types. Use of matching software to cross-reference content by major security identifier keys. Improved data distribution, integration and reporting capabilities, including the use of SQL/RDBMS data hubs and data marts.	Full scope of required distribution, cleansing, workflow, integration and reporting capabilities deployed to support rapid integration with consuming business systems (Messaging, Web Services, Data Marts/Hubs, API's, Flat files). Well thought-out architecture for storage and distribution often in the form of a centralized security master feeding various business and application specific data marts. Access controlled via entitlements.	Strategic technology focus is on the future business needs and the direction of data technology and architecture, often leading to evaluation / use of SOA (Service Oriented Architecture) and selective use of outsourced Managed Services. Existing technology is continuously upgraded and improved to enhance capabilities and reliability to better service the end consumers.
7. Operations	Operations on the periphery of data management projects only providing basic infrastructure components (Server and network	Increased operational support provided as part of the support for the business application using data. Typically narrowly focused on the scheduling and running	Introduced Data Quality Management supported by Data Stewardship/Data Analysts roles to address the previous capability gaps around data quality, support, entitlements	Develop and Implement Metrics and more robust service levels. Further leverage Governance and Data Stewardship to optimize data quality, support and	Data Operations involved stakeholder in the Strategic planning to address the future direction of data technology and architecture and selective



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Disciplines	Stage 1 Basic / Initial	Stage 2 Managed / Basic	Stage 3 Standardization / Repeatable	Stage 4 Quantitatively Managed/ Strategic	Stage 5 Continuous Improvement)
	<p>services). Minimal formal roles / responsibilities or involvement in production data operations and support.</p>	<p>of production systems and processes to acquire / deliver data content. First and second level support provided via an escalation process to 'data' developers and business analysts.</p>	<p>control and bringing on new content. Depending on the firm, this Data Services group can be part of Operations or can be a separate group within Information Services.</p> <p>Either way, data is now managed as part of firm's operational infrastructure and subject to operational vigor, standards, service levels, and business continuity. Supported with "hotline" and first and second level support for problem resolution.</p> <p>Operations responsible for the traditional services for Hosting, Network, Capacity Management, Software deployment, System Recovery, etc.</p> <p>SLA's introduced cover all aspects of the firm's data solutions and services.</p>	<p>continue to add content and capabilities.</p>	<p>use of outsourced Services.</p>



ABOUT LAKEFRONTDATA

LakeFrontData specializes in Enterprise Data Management via a family of three associated but independent companies: LakeFrontData Consulting, ReferenceDataFactory and LakeFrontData Jobs. LakeFrontData offers consulting and advisory services, open data management integration software and a data management community jobs web-site.

LAKEFRONTDATA CONSULTING

LakeFrontData Consulting is a specialist firm of industry-leading data management experts providing unbiased, objective and trusted advice, focused on all facets of enterprise data management (EDM) including strategy, technology, product management, and implementation services. Our team of professionals provides a broad range of data know-how based on real-life experience serving in senior management and operational positions.

LakeFrontData understands the data management marketplace and appreciate the demands that financial institutions face in today's challenging market conditions. Whether it is a need to increase revenue, mitigate risk, reduce costs or adhere to the latest regulatory requirement, we are a trusted advisor for enterprise data management.

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