Third Star Financial Enterprise Data Management Architecture and Implementation Plan

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DAT 515: Enterprise Data Management

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Third Star Financial Services is an "alternative banking organization," offering services such as money transfers. There are approximately 15,000 locations globally, with 3,000 in the United States and 2,000 in Canada. The company is currently unaware of the number of customers it serves. Customers can conduct business transactions directly with Third Star Financial Services' online facility or through one of the company's agents. The online facility is not connected to agency systems, but agents have the choice of many different agency systems due to the company's quick growth since 2009.

There are a few issues that need to be addressed within the company. First, Third Star Financial Services is aware of the move to mobile banking solutions, such as mobile applications, and wants to enhance its online presence. Second, there are grievances from agents due to the lack of quality in current systems of agent and customer data. As mentioned before, the company does not know how many customers it has; much of the data is represented in various source systems. Thirdly, the company is not using the data mining or dashboard capabilities, although it has systems in place and data warehouses, to use such analyses to make business decisions. Another issue is that there is no data management or management of business rules, as there are complications specifically within the IT department, but ultimately company wide. This is due to many factors, but overall, there is no collective understanding of data governance. To add, there is a high turnover rate, loss of market share, which is going to eventually lead to the demise of the business if not addressed soon. The biggest issue is a lack of data enterprise management.

An enterprise data management system would be of huge benefit to Third Star Financial Services. The DAMA-DMBOK2 Data Management Framework is centered around data governance. The Data Governance function guides all other data management functions, and as observed, there is no collective understanding of data governance in the company (International,

2017). This is one of the first, and biggest, problems we can fix. A data governance program includes strategy, policy, standards and quality, oversight, compliance, issue management, data management projects, and data asset valuation (International, 2017). Sponsorship from the new Chief Enterprise Architect and an organizational culture change will lead to successful data governance implementation (International, 2016). Data governance will also aid in reducing risk and improving processes, adding security to data, improvement of data quality, establishing a business glossary to define and locate data, improve efficiency in development projects, and much more.

This report's goals are to develop and implement an enterprise architecture for the organization to modernize and streamline the company's operations (Hoffer, n.d.). By creating a proper enterprise data/information management strategy and plan, every one of the above issues can be addressed and solved.

The current architecture employed by Third Star Financial lacks proper data governance. There is no understanding of the need for data governance company wide. Grievances detailing the inferior quality of current systems seem to be common, as there is no sole source of agent data and much data is repeated in various source systems. Although there have been multiple efforts to build data warehouses, there was not an enterprise or integrated approach to the architecture, leading to reports not being used for decision making, data mining or dashboard capabilities not being used, and no common report library for unit reference (Hoffer, n.d.). The IT department is not considered to be competent enough to manage the data across the entire company, so there are small groups of technical staff in separate business units.

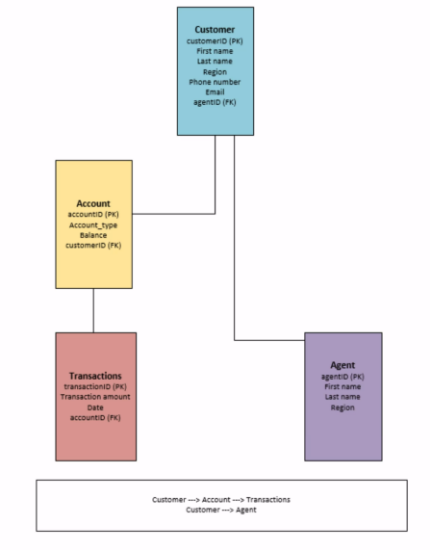
As of right now, none of the components of standard enterprise data management at Third Star Financial Services are performing at a level to support the needs of the company. This is negative for the company's operating strategies, as it has many risks associated. "Without a structured approach to managing and governing data, organizations are more prone to problems like data breaches, poor data quality, and process inefficiencies (Actian, 2024)."

The first part they are missing is data governance. "Successful data governance requires a clear understanding of what is being governed and who is being governed, as well as who is governing (International, 2017)." As mentioned above, the company does not have a general understanding of what data governance is. This is the first part of enterprise data management that will need to be addressed.

The current state of enterprise data management is not great for business. Third Star Financial Services has experienced high turnover rates, lost market share, and their overall confidence in data-based decision making (Hoffer, n.d.). Their competitor has even taken most of their executives and other employees. The turnover rate and market-share loss can be attributed to the same, reoccurring theme; a lack of data analysis in decision making. As the years pass and competitors up their game in data-based decision-making, Third Star Financial is bound to failure unless profound changes in their enterprise data management system are implemented.

Third Star Financial Service is prepared to change these components of enterprise data management to boost productivity and competitiveness in the market. The implementation of data management frameworks will also help with company culture, decreasing turnover rates, less confusion in data sources, and agent success. With a few tweaks to their current system, it is my

full belief that Third Star Financial Services can turn their current state of organizational failures around.



As shown to the left, we have visual maps showing the conceptual and logical model addressing the data requirements of the customer subject area for Third Star Financial. The customer data branches into two sections: account and transaction data and agent data. It is mentioned that customers can conduct transactions via an agent or by themselves. This could be a binary operator that would determine the pathway from customer data to agent data.

Incorporating the DAMA-DMBOK framework into conceptual and logical data models is essential for ensuring a company's data strategy is aligned with best practices and supports long-term success. Entity definition within this framework ensures that critical business objects, such as Customer and Account, are clearly identified and structured, allowing for accurate data throughout the organization (International, 2017). Each entity above has a domain, including all attributes that can be assigned to said entity. By including the proper attributes for each entity, such as customer contact information or account balances, it supports both operational efficiency and compliance requirements by ensuring all necessary data is in line for decision-making and reporting. By defining relationships between entities, we show clear connections and keep data integrity, which is key to ensuring that business rules are consistently followed and correct reporting is achieved. Primary keys ensure relational integrity by linking related data across tables, acting as the "candidate key that is chosen to be the unique identifier for an entity (International,

2017).” You can see the primary keys accompanied by a “(PK)” in the data model. Foreign keys stand for the relationship between defined between two entities. You can see the foreign keys accompanied by an “(FK)” in the model.

To support the modernization goals of Third Star Financial Services and address the unorganized data environment, I am recommending the implementation of two technologies: a Master Data Management (MDM) system and a cloud-based data lake platform. Both tools, combined with enhancements to data governance practices as outlined in the DAMA-DMBOK2 framework, will help Third Star combine and secure its data, increase operational efficiency, and improve decision-making processes.

The first technology I would recommend is the Master Data Management (MDM) system. MDM systems would provide Third Star with a centralized, consistent view of core business entities such as customers, agents, and accounts. Currently, there is no sole source of truth for customer or agent data, and duplicate information is scattered across multiple systems. Implementing MDM would help Third Star create and keep clean, authoritative data records, which are essential for both operational and analytical purposes. The benefits of using MDM include improved data accuracy, better regulatory compliance, and enhanced customer service (CordeliaGrey, n.d.). However, implementing MDM comes with challenges. “From inconsistent standards to unclear ownership, these challenges can cause significant disruptions, impacting everything from process efficiency to data compliance, to new system implementations / upgrades (AndH, 2024).” Third Star would need to ensure efficacy across the company to smooth the process of transitioning to MDM systems.

The second technology recommendation is a cloud-based data lake, such as Amazon S3 or Microsoft Azure Data Lake. A data lake would give Third Star a scalable and flexible platform to store structured and unstructured data in a centralized location. Currently, data is siloed across multiple warehouses by line of business, and most reporting is operational rather than strategic. A data lake would allow for more advanced analytics, enable the use of real-time data, and support mobile and web-based services, aligning with Third Star's goal to grow its digital presence (*What Is a Data Lake? - Introduction to Data Lakes and Analytics - AWS*, n.d.). While the benefits include lower infrastructure costs and greater access to business intelligence tools, challenges may include network upgrades, data security planning, and training staff to adopt new analytical platforms.

By using the DAMA-DMBOK2 framework as a guide, I recommend that Third Star set up a formal data governance program to support both technologies. This includes defining roles such as data stewards, creating standardized data definitions, and implementing policies for data quality, metadata, and reference data management (DAMA International, 2017). Third Star's current lack of governance has led to inefficiencies and inconsistent practices across departments. Establishing clear responsibilities and guidelines will support the effective implementation of MDM and data lake solutions and ensure long-term success. Additionally, consistent metadata practices will ensure that users across the organization are aligned on the meaning and use of data (DAMA International, 2017).

These technologies and management strategies are interconnected. For example, MDM requires strong governance practices and reliable data to function correctly. At the same time, having centralized, trusted master data will improve the accuracy and value of insights generated from the data lake. "Accurate and consistent data is fundamental for operational efficiency,

strategic planning, and decision-making. Inaccuracies can lead to misguided decisions, compliance risks, and a loss of client trust. Consistent data ensures uniformity across various platforms and systems, easing seamless integration and analysis (Austin, 2023).” Introducing new tools may also influence management strategies; requiring new procedures, training programs, and potentially new roles to manage the environment.

Internal stakeholders such as analysts, customer service teams, and IT staff will benefit from improved data consistency, better tools, and clearer accountability. External customers will benefit through enhanced service experiences. Compliance issues must be considered when choosing technologies. For example, any tool must follow data privacy laws such as GDPR and CCPA, and data stored in the cloud must be protected using encryption and secure access protocols. The company must also consider transparency with customers about how their data is used and protected (DAMA International, 2017; Amazon Web Services, n.d.).

With the implementation of an MDM system, we should start with an assessment phase, where Third Star finds and catalogs all existing customer, agent, and transaction data sources. This phase should include data profiling and mapping. According to Infosys, “it is imperative to focus on only one sub-set of a master data asset at a time (2010).” Once the data landscape is understood, Third Star can begin to design the MDM system, starting with focusing on a core data entity, such as customer information. This initial implementation would involve selecting an MDM platform such as Microsoft Master Data Services, setting up data governance policies, and defining master records using standardized attributes (CordeliaGrey, n.d.). “Master Data Services enables you to manage a master set of your organization's data. You can organize the data into models, create rules for updating the data, and control who updates the data (CordeliaGrey, n.d.).”

In addition to implementing the MDM system, the cloud-based data lake implementation should begin with selecting a cloud provider, such as Amazon Web Services. A data lake provides scalable storage that supports both structured and unstructured data across the enterprise, which is ideal for Third Star's complex and fragmented environment (*What Is a Data Lake? - Introduction to Data Lakes and Analytics - AWS*, n.d.). Some key tasks will include implementing data integration techniques, security measures, and configuring storage policies (International, 2017). Once foundational infrastructure is in place, analytical tools such as Power BI or Zoom Data should be deployed to support business intelligence and enhance visualizations to stakeholders.

The level of management attention needed for successful implementation is significant. Sustaining the solution long term will require the creation of a dedicated Data Governance Council that oversees policy enforcement, prioritizes data initiatives, and ensures organizational alignment (International, 2017). These management practices align with the DAMA-DMBOK2 framework, which emphasizes the need for clear roles, ownership, and accountability in enterprise data management (DAMA International, 2017). Additionally, Weill and Ross (2004) note that top-performing organizations invest heavily in IT governance to support decision-making and alignment between IT strategy and business needs.

To address these management requirements, the implementation strategy includes structured training, cross-functional workshops, and the creation of formal roles such as data stewards and data custodians (International, 2017). These roles ensure that business and IT stakeholders are still engaged beyond the initial deployment. Regular governance review meetings should be scheduled to check progress and resolve issues as they arise.

In terms of technical ability, implementation will require a team with experience. Third Star may need to supplement its internal IT team with external consultants who specialize in cloud migration and MDM tools, particularly during the setup and early configuration stages. Atlan states, “Ideally, the people responsible should be SMEs (subject matter experts). Their deep understanding of their domain’s data allows them to connect data governance policy enforcement with business outcomes (2024).”

As Third Star Financial Services implements the recommended enterprise data management architecture, it must also adopt comprehensive financial data protections and ethical standards. The company will be handling large volumes of sensitive customer and business financial data across cloud and legacy systems, which increases its exposure to cybersecurity risks and compliance requirements.

To protect private financial information, several technical and administrative restrictions should be implemented. First, encryption protocols must be used to secure data. According to the National Institute of Standards and Technology (NIST), encryption is one of the most effective controls for preventing unauthorized access to financial data in public and hybrid cloud environments (Jansen et al., 2011). This includes encrypting databases and applying secure key management practices. Second, user access control should be deployed to ensure that only authorized users can access financial records. User’s roles must be carefully defined based on job function, and access should follow the principle of least privilege (International, 2017).

Monitoring and data audit logging are critical restrictions that must be implemented for the database's physical security. Every access request, data change, or transfer of financial data should be logged in a secure manner. These logs should be reviewed regularly by compliance and

security teams to detect and investigate potential misuse or breaches. Data loss prevention tools should be installed to monitor and prevent unauthorized use of data.

Ethical issues may arise during implementation, particularly as the company transitions to an enterprise data management system and centralizes customer data. There could be issues dealing with vendor contracts, for one. A way to navigate this issue would be to renew and revise existing contracts to ensure confidentiality, compliance, access, restrictions, audit rights, etc. (*Privacy and Data Security Vendor Contract Negotiation Guide*, n.d.). Another concern involves bias in data use. "The ethical principle of justice creates a positive duty to be aware of possible biases that might influence data collection, processing, analysis, or interpretation (International, 2017)." Transparency, overall, will be key. Customers should be informed how their financial data is being used, and clear opt-in/opt-out options must be provided for non-essential data collection.

Access restrictions are also an ethical consideration. Not all employees, vendors, or contractors should have access to sensitive financial information, and contracts should be revised to include the implications involved with a data leak. "Even if a customer gives your company consent to collect, store, and analyze their personally identifiable information (PII), that doesn't mean they want it publicly available (*5 Principles of Data Ethics for Business*, 2021)." It is essential to ensure data subjects' privacy. The DAMA-DMBOK2 framework recommends assigning data stewards and custodians responsible for protecting data assets (International, 2017). These roles help support accountability and align ethical responsibilities with data governance policies.

This report outlined weaknesses in Third Star Financial Services' current data management practices and proposed a strategic plan grounded in the DAMA-DMBOK2 framework. By implementing Master Data Management (MDM) and a cloud-based data lake, supported by governance and improved data management, the company can cut data silos, improve decision-making, and enhance efficiency. These improvements will not only help existing systems but also enable future growth through mobile banking, real-time analytics, and stronger customer engagement. In the future, added tools such as automated systems and advanced dashboards/ visualizations can further strengthen Third Star's data capabilities and competitive edge.

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