MASTERING YOUR MASTER DATA

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Introduction

In large or rapidly growing businesses, it can be difficult for data management to keep up with the ever-evolving digital landscape. As a result, crucial information collected as part of business operations often ends up spread across a fragmented environment of servers, desktops, and software. This fragmentation prevents companies from leveraging their data in a meaningful and valuable way. Unsurprisingly, a recent Capital One survey of data management decision-makers reported that "76%... found it was difficult to understand their data" and "nearly 80%... struggle to understand what data they have, how the data is used, and who owns the data[1]." Businesses that successfully manage their data open doors to a myriad of valuable business practices, such as business intelligence, automation, artificial intelligence, and process optimization, as well as the creation of tangible value though cost reduction, increased efficiency, and transparency for more informed decision-making.

One significant step businesses can take in identifying, consolidating, and managing their data is through the implementation of master data and master data management ("MDM"). Master data a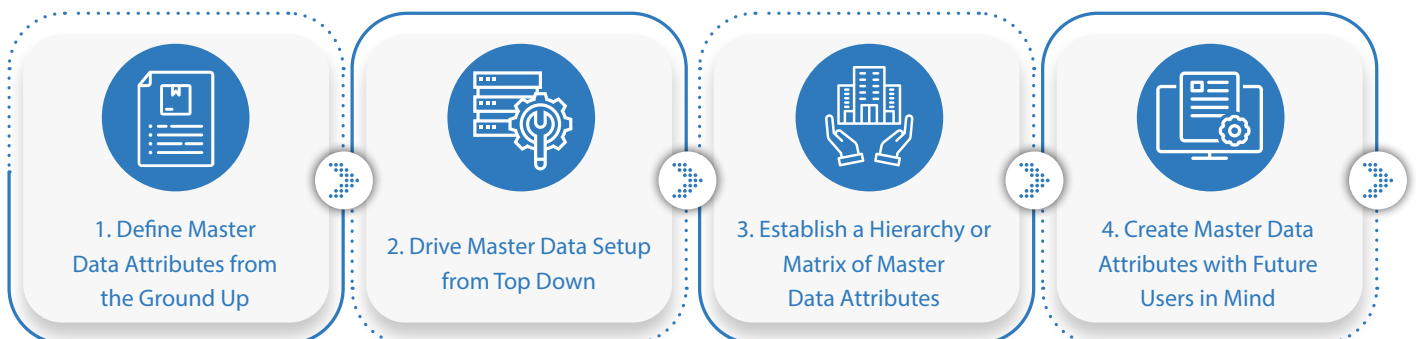re categories, identifiers, or attributes that tag or group data that is core to the successful operation of an enterprise, business function, or group. MDM, by extension, is the proper development, implementation, and maintenance of master data. This is done through establishing the necessary governance structure, building the processes surrounding and relying upon the master data, establishing a digital backbone that can support MDM, mapping master data to data elements, and ensuring quality and compliance throughout. Master data and MDM, therefore, provide a transparent single source of truth, lay the foundation for leveraging the data for valuable business insights, and eliminate costly and time-intensive collating of information across various systems.

This paper leverages extensive experience attained in implementing master data and MDM programs to not only provide guidelines for comprehensive master data setup, but also detail the necessary building blocks for the successful management of it. While this paper will discuss master data attribute setup before the maintenance of it, it is important to understand that in practice these two activities are intimately intertwined, not separate or sequential.
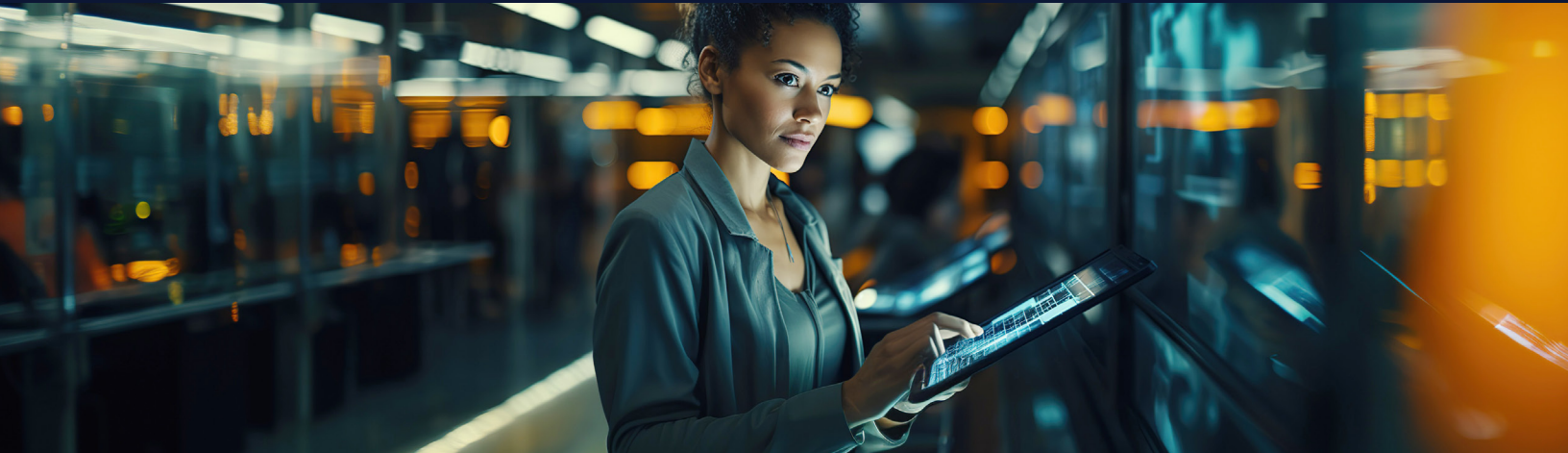
Guiding Principles for Master Data Attribute Setup

There are four guiding principles for setting up master data attributes:

1. Define Master Data Attributes from the Ground Up	2. Drive Master Data Setup from Top Down	3. Establish a Hierarchy or Matrix of Master Data Attributes	4. Create Master Data Attributes with Future Users in Mind

1. https://www.capitalone.com/software/resources/data-management-trends/

Define Master Data Attributes from the Ground Up

Suppose a manager wants to receive a list of all suppliers in Houston, Texas, but their supplier database only groups suppliers by state. Such a list would not only fail to be readily usable but also would require timely manipulation or collation with other reports. This simple example shows why a ground up approach is necessary when a business is trying to define meaningful groupings (i.e. the master data attributes) for their data. Failure to identify or incorporate the information at the desired level of granularity increases the risk the master data and, any related data analysis, will fall short in providing the desired information and actionable business insights. As the saying goes: *garbage in, garbage out.*

Drive Master Data Setup from Top Down

Business leadership involvement is required for two reasons: 1. Business leaders know what information is crucial in either reviewing business information or making informed business decisions and 2. Business leaders provide necessary vision, context, and accountability to help catalyze the ground-up build, monitor related key performance indicators, and instill stakeholder buy-in to new ways of working. Failing to have top-down involvement will either lead to a failed implementation due to inadequate buy-in, or to a solution with little business value. Regarding buy-in, it cannot be overstated that leadership involvement not only erodes natural resistance to change, but also reinforces employee adaptation necessary for long-term adoption. As for developing a solution with little business value – continuing our example from above – suppose local sales staff advised the creation of a master data attribute to identify suppliers with assigned sales parking spots. It might seem important for sales staff, but it provides no business value and might get approved absent leadership guidance.

Establish a Hierarchy or Matrix of Master Data Attributes

This principle merges the processes from the above two to form an essential output of any master data implementation. Enterprise insights from the top-down master data attribute setup can be layered onto the ground-level master data groupings to create meaningful tiered and cross-sectional groupings of data. Establishing these kinds of relationships between master data attributes creates a hierarchy or matrix, which sets a necessary foundation for meaningful business intelligence applications. For example, granular level master data categories, like *Houston Industrial Equipment Suppliers*, can roll up via the below hierarchy to *Global Industrial Equipment Suppliers*. Managers can then utilize business intelligence software integrated with the below hierarchy to select the relevant grouping or tier for analysis (e.g., vendor relationship management, total sales information, etc.).
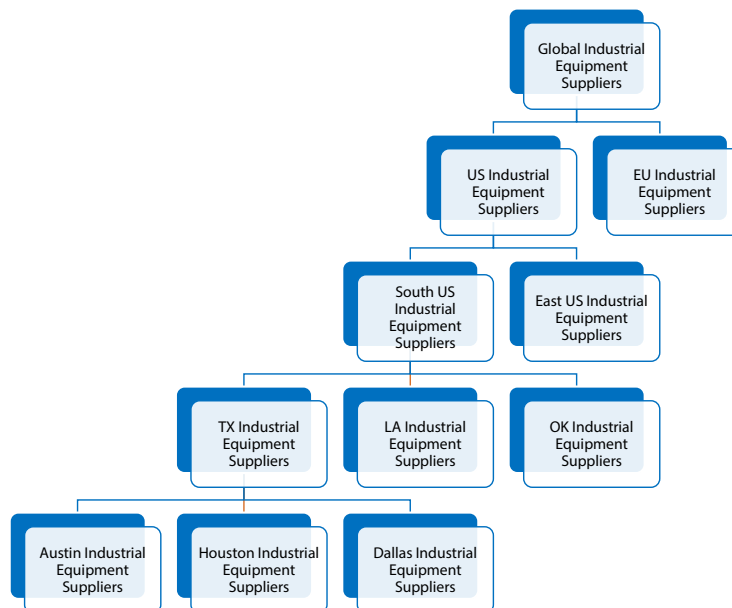
Create Master Data Attributes with Future Users in Mind

The last guiding principle to setting up master data recognizes that master data implementation and management are not isolated, point-in-time activities. Instead, they are perpetual activities that must be supported at all levels of the organization to truly reap their benefits. As a result, any master data setup must be established with future use and users in mind. While every business will need to incorporate nuances specific to their operations and the continual development of disruptive technologies relevant to them, here are a few core rules:

Use plain, simple language

Master data attributes should avoid unclear acronyms, short-hand, or abbreviations.

Use consistent naming convention

Define clear parameters for naming master data such that additional master data attributes created over time are easily understood by all users and conform to preexisting nomenclature.

Avoid generic, catch-all classifications

Groupings like "Other" or "Miscellaneous" are impossible to utilize for business intelligence purposes and are inevitably overused.

Do not use individuals' names

It is common for business supporting function master data hierarchies to mirror aspects of a business's organizational structure. Despite this occurrence, no one will permanently hold a position. If necessary, use job titles instead.

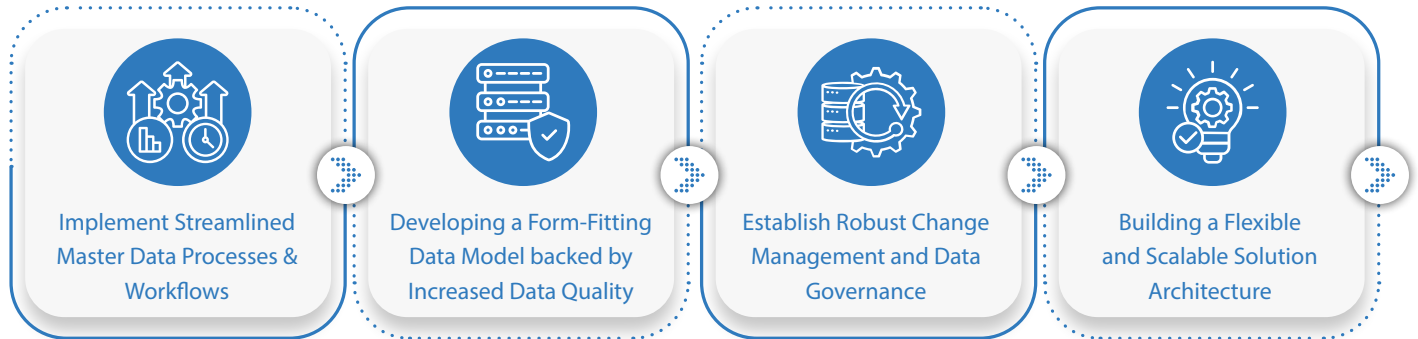### Incorporate master data setup in sustain and business as usual processes

A successful MDM implementation must involve creating new, permanent MDM-related processes.

Guiding Principles for Master Data Attribute Setup Review

By following the four guiding principles of master data attribute setup, an organization will have a comprehensive hierarchy or matrix of clearly defined master data attributes that flow from the top of the organization to the lowest meaningful level of granularity with the purpose of using it for more informed decision-making and increasing business value.

Master Data Management Building Blocks

With a detailed understanding of the setup of master data attributes, it is now crucial that businesses, organizations, or enterprises are empowered to extract the full value from their master data initiative. There are four building blocks to the successful management of master data that will be discussed in turn:

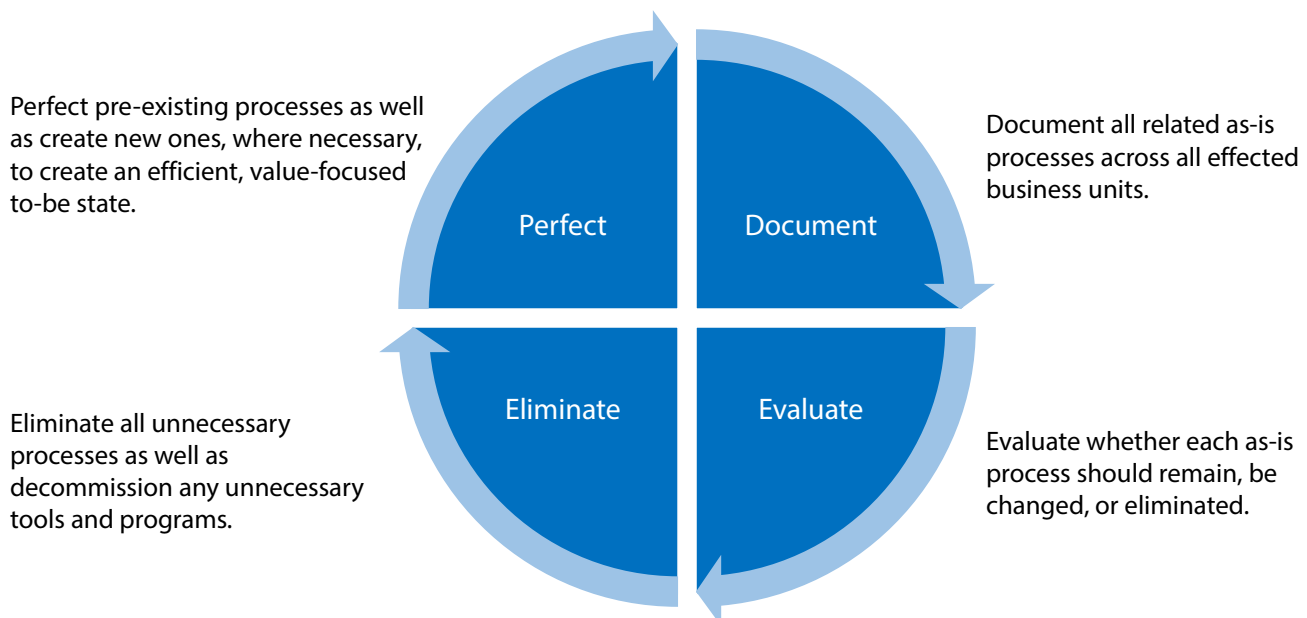| Implement Streamlined Master Data Processes & Workflows | Developing a Form-Fitting Data Model backed by Increased Data Quality | Establish Robust Change Management and Data Governance | Building a Flexible and Scalable Solution Architecture |

Implement Streamlined Master Data Processes & Workflows

A ground up build gives a business an opportunity to see a fully transparent, comprehensive view of as-is business processes and tools. By networking with the producers and consumers of data, businesses can understand important contextual information on what data is needed and how it is used so they can define a practical and value-driven to-be process state. With an understanding on the as-is and to-be states, tedious manual processes, or unnecessary duplicative efforts can be streamlined or removed. Refining and automating processes and workflows minimizes duplication or wasted effort and establishes clear roles for process participants. Simply, this will save users time and money so more effort can be spent on value-add activities.

Use DEEP to guide as-is process interrogation in light of business objectives and the desired to-be state:

Perfect pre-existing processes as well as create new ones, where necessary, to create an efficient, value-focused to-be state.

Document all related as-is processes across all effected business units.

Perfect

Document

Eliminate

Evaluate

Eliminate all unnecessary processes as well as decommission any unnecessary tools and programs.

Evaluate whether each as-is process should remain, be changed, or eliminated.

Developing a Form-Fitting Data Model backed by Increased Data Quality

This building block is where master data attributes are setup and formed into hierarchies and matrices (per the guiding principles above). It is important to remember that the four guiding principles of master data attribute setup ultimately produce a bespoke, flexible, and scalable data model for a wide range of purposes such as business intelligence, meta data management, and data security.

Establish Robust Change Management and Data Governance

While change management and data governance deal with different things, they are purposefully grouped within this paper for two reasons: 1. They are both often overlooked or discounted, and 2. They are both imperative to success.

Change Management:

Notoriously, more than 70% of change initiatives fail[2]. The reasons are numerous, but the Harvard Business Review summarized them into five buckets: Failure to Remove Impediments, Lack of Urgency, Weak Leadership Team, Lack of Vision, and Poor Communication on Vision[3]. Implicit in all of these reasons is the failure of the business to overcome human nature's innate resistance to change. As a result, go-it-alone tactics, or merely checking the change management box will set any business on the path towards failure. Change management professionals are trained in linking personnel and processes across all levels of an organization to systematically guide an enterprise though the oft-choppy waters of change. This makes change management even more important in MDM initiatives that not only take time, but create brand new, permanent ways of working for all affected. It is therefore recommended to utilize strong internal or external partners with robust change management practices and experiences to ensure MDM initiatives are a success.
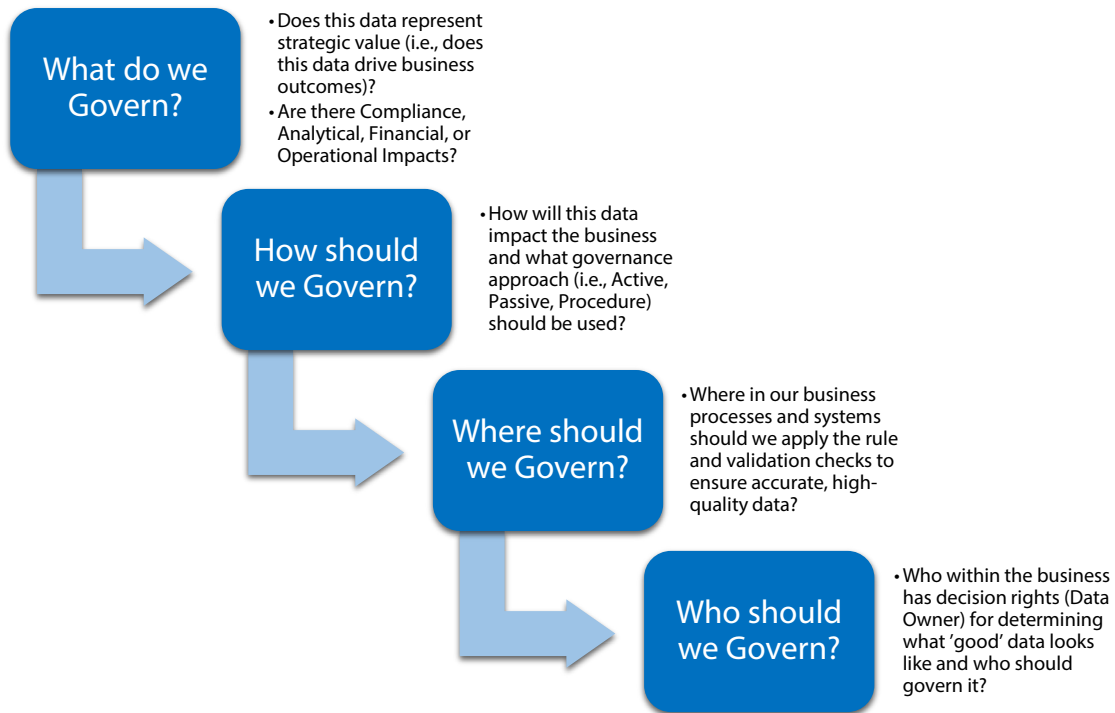
Data Governance:

Data governance is a formalized structure consisting of people, processes, policies, and technologies that is designed to both advise and steward an organization's data and ensure integrity, trust, consistency, and usability of data. Data governance, therefore, underpins everything recommended within this paper. Said another way, without the transparency, processes, and controls established and maintained through data governance, even the best-intentioned organization will experience the crumbling of their MDM initiative as time, turnover, and bad habits seep in. A thorough data governance structure and related team provide an enterprise with transparent guidance on the proper use and applicability of data, including master data.

2. https://hbr.org/2000/05/cracking-the-code-of-change

3. https://hbr.org/1995/05/leading-change-why-transformation-efforts-fail-2

When identifying and establishing data governance, use the following decision tree framework.

What do we Govern?
- Does this data represent strategic value (i.e., does this data drive business outcomes)?
- Are there Compliance, Analytical, Financial, or Operational Impacts?

How should we Govern?
- How will this data impact the business and what governance approach (i.e., Active, Passive, Procedure) should be used?

Where should we Govern?
- Where in our business processes and systems should we apply the rule and validation checks to ensure accurate, high-quality data?

Who should we Govern?
- Who within the business has decision rights (Data Owner) for determining what 'good' data looks like and who should govern it?

The resulting data governance structure should ensure that critical data is governed proactively via a structured, enterprise level, cross-functional capability driving information and data trust.

Building a Flexible and Scalable Solution Architecture

For master data to perform its role as the single source of truth within an organization, all master data and its attributes must be readily accessible. As a result, master data implementations often involve centralizing an enterprise's data for both ease of access and ease of control. This requires that the resulting infrastructure and related software are flexible and scalable to support continued use over time, as well as compatible with various automation and business intelligence tools.

In today's digital landscape, most companies require robust, integrated, cloud-based products such as Azure, AWS, and Google Cloud Platform to satisfy their data aggregation and reporting needs. These enterprise-grade, cloud-based digital platforms provide a wide range of integrated tools, services, and solutions for building, deploying, and managing data and applications in the cloud. From scalable data storage, efficient pipeline and infrastructure management, and robust analytics and AI capabilities to data security, data analysis, and reporting, choosing the right cloud provider and their corresponding services could mean the difference between a successful MDM deployment or not.

After choosing the best fitting cloud computing platform, the

next step is to identify the program with which master data will be setup, mapped, and managed. There are several suitable products on the market such as ERP giant SAP, or cloud data management and integration specialist Informatica. Ultimately, as with creating a master data hierarchy, defining the proper to-be business processes, and developing a form-fitting data model, it is important that both the cloud computing platform and the MDM-specific product are compatible with the business' desired use of them.

To ensure the selected MDM product is compatible, an MDM Capability Assessment Framework can be used. An MDM Capability Assessment Framework uses a list of a business capabilities and needs (e.g., Business Process & Workflows, Data Modeling, Systems & Architecture, Data Governance, Data Quality, Policies, & Standards, Sustainability & Scalability, Analytics & Reporting, Data Integration & Distribution, Consolidation & Mass Processing) and evaluates them against enhancing the business' existing software or solutions, using an ERP solution, or using an industry-based solution. This evaluation involves weighing the time and cost of each solution versus their utility. Ultimately, such a framework illuminates the best product or choice for a particular business based on the business' current capabilities.

Master Data Management Building Blocks Review

The proper management of master data is as important as its setup. Use the four building blocks of master data management herein to build a comprehensive, data-driven environment and infrastructure to successfully utilize master data.

Conclusion

Master data and MDM are a part of almost every business, organization, and enterprise. Therefore, the successful setup and maintenance of master data are mandatory components of a successful business. Remember, master data attribute setup and master data maintenance are simultaneous and integrated activities, not distinct or sequential. Use the four guiding principles – a ground up build with future users in mind, driven from the top-down to produce a hierarchy or matrix of attributes – to set up a fit-for-purpose, data-driven master data model. Also, use the four building blocks of MDM – streamlined master data processes and workflows, data model and data quality, change management and data governance, and solution architecture – to build an organizational environment that not only can support master data, but also utilize its value to the fullest. Using these principles and building blocks will empower enterprises to successfully leverage their data for more informed decision-making and robust analytics and reporting.

About the Authors

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Zachary White is a Principal with Infosys Consultant and has over a decade of experience leading large programs – such as enterprise-wide digital transformations and complex mergers & acquisitions – across industries, functions, and the globe. Zach is a licensed attorney, MBA, and professional scrum master, who leverages his diverse and discerning perspective to deliver value-driven solutions for clients.

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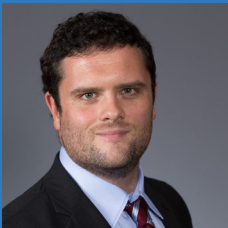
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