

A hand in a white shirt points upwards towards a digital interface. Overlaid on the image is a network diagram consisting of several circular nodes connected by dashed lines. One node is directly on the hand's index finger. Other nodes are positioned around the hand, with lines connecting them in a web-like structure. The background is a blurred image of a person in a white shirt.

DATA AND ANALYTICS CATALYST

LEADERS POWERING THEIR ORGANIZATIONS
TOWARD A DATA-DRIVEN FUTURE

A PLAYBOOK FOR TRANSFORMATION

Are you in charge of propelling data and analytics forward in your organization?
If so, this playbook can serve as a useful resource, arming you with tailored strategies and solutions to help you be successful in your role.



YOUR MISSION: A DATA REVOLUTION

Every day, data is reshaping our world: from changing the way we travel and vacation through services like Uber and Airbnb, to transforming our health through fitness apps and personalized medicine based on our unique genetic makeup. In our increasingly data-driven economy, data is empowering organizations to think differently about how to solve their most complex challenges, and providing new opportunities to make more informed, strategic decisions. Now, more than ever, organizations must capitalize on their data in order to stay competitive, improve the customer experience, and maximize productivity.

Regardless of your role or title — Chief Data Officer, Chief Analytics Officer, Chief Data Scientist, Chief Information Officer, Chief Technology Officer, Director of Data and Analytics — you are a data and analytics catalyst within your organization. You have the ability to inspire and evoke new thinking and ideas, shatter constraints, and create a culture of data-driven decision-making that transforms your organization. Understanding the power that a data-driven organization has in realizing its purpose, discovering new insights, and improving business outcomes will be your greatest asset.

So how will you unlock your organization's potential through data and analytics? How will you ensure your organization can capitalize on its most valuable emerging asset to uncover powerful insights?

It starts with recognizing what type of leader you are and aligning those responsibilities with a holistic framework for success.

DATA & ANALYTICS CATALYSTS: FOUR COMMON PERSONAS

Through our research and working with clients, we’ve found that most data and analytics catalysts typically fit into one of four common personas. Each plays a critical role in advancing decision-making using data, but each has varying degrees of responsibility, oversight, and influence in his or her organization. Further, some catalysts may be a “hybrid” of more than one persona.

WHICH TYPE OF DATA & ANALYTICS CATALYST ARE YOU?

ENTERPRISE LEADER



Setting the Vision

Works across the enterprise to set the organization's data and analytics vision and strategy

BUSINESS/ OPERATIONS LEADER



Enabling Actionable Analytics

Advances grassroots use of data and analytics from within a business/operational unit

SERVICE PROVIDER



Demonstrating Value

Provides services that prove the value of data and analytics for internal customers

PRODUCT EXECUTIVE



Pushing the Envelope

Drives product development by applying cutting-edge data science and advanced analytics

A FRAMEWORK FOR SUCCESS: DRIVING TOWARD A DATA-DRIVEN ORGANIZATION

Not all organizations are at the same place in their data and analytics journey. While some are working to determine what data they have and how to govern it, others are developing their data and analytics strategy, or pushing the envelope by performing advanced analytics and data science.

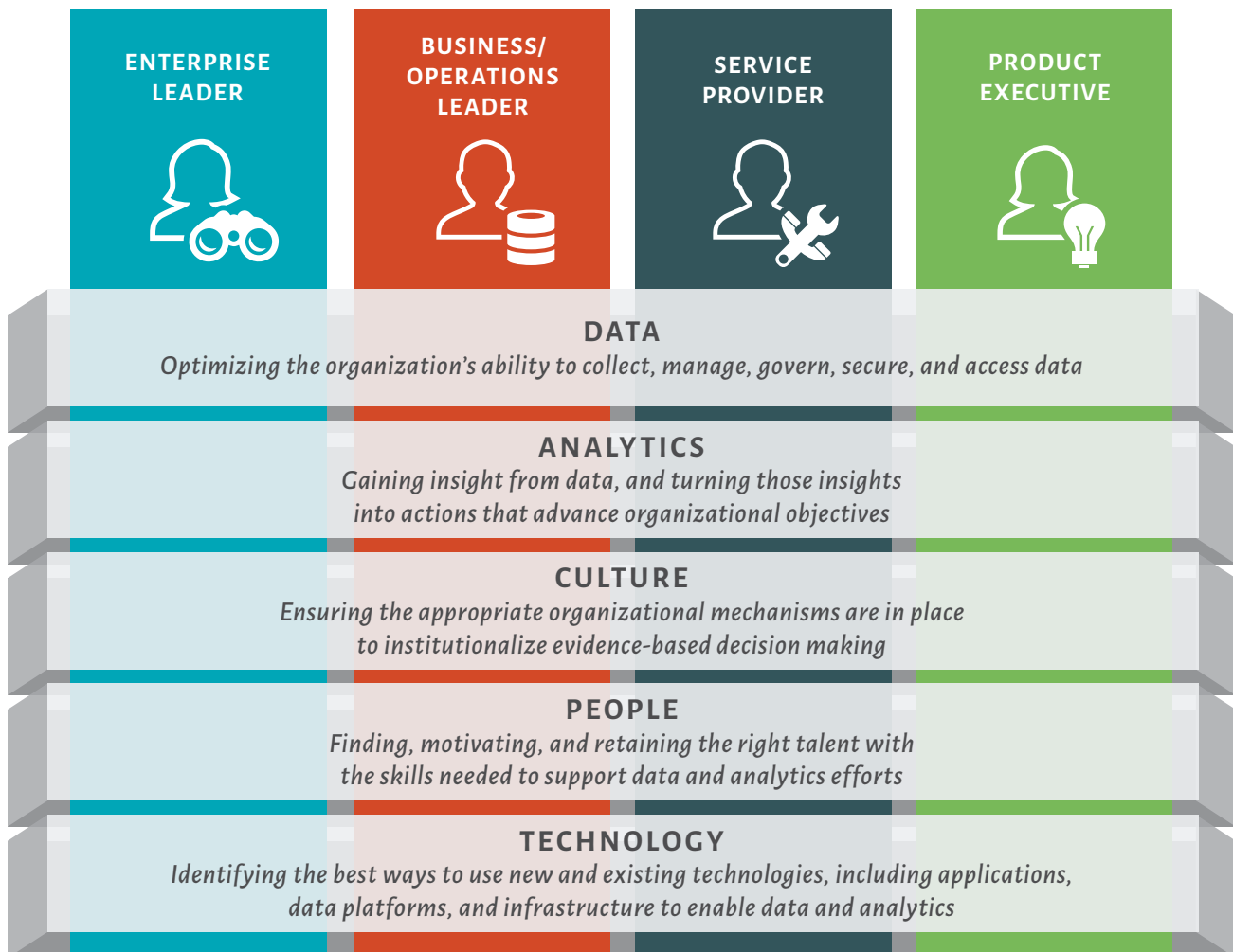
No matter your persona or where your organization is in its journey, success comes from the ability to take a **holistic view** that considers **Data, Analytics, Culture, People, and Technology**. Data is the most critical element, but the corresponding analytics, culture, people, and technology enablers allow a data-driven organization to thrive.

As a catalyst, you don't necessarily own each of these framework elements, but you're responsible for collaborating with others to address each one on your journey to becoming data-driven.

Along the way, you will face different challenges depending on your role and responsibilities, as well as how far along your organization is in its data and analytics journey.

For each persona, we've outlined some of the common challenges you may face across each of the five framework elements, along with potential solutions and tactics to apply as you seek to make your organization more data-driven.

A HOLISTIC VIEW



ENTERPRISE LEADER: SETTING THE VISION

As an Enterprise Leader, you work across the enterprise to set the organization's data and analytics vision and strategy.

Committing to and investing in data and analytics at the enterprise level will inspire employees to look at data in new ways and help create a data-driven culture that keeps your organization competitive and thriving in the long-term.

WHAT DO YOU FACE TODAY?

Enterprise leaders set the data and analytics vision and strategy, and put the right mechanisms in place to ensure buy-in throughout the organization. You may be surprised that your role is less about “the data” itself and more about using your influence to create demand signals and a business case for data-driven decisions, and establishing proper data management and governance strategies and standards. You may struggle with data quality, duplicate systems and processes, or lack of transparency among programs or

business units. You may also face pushback from leaders and staff who are unwilling to learn new skills or change the way they do business.

YOUR JOURNEY & MILESTONES

Your journey often begins with a data and analytics strategy and capability assessment that reveals opportunities to use data to improve operations, yield insights on customers, or improve mission-related outputs. You then establish the operating model that works best for your organization, begin gaining buy-in for data and analytics, and solicit and promote the sharing of best practices across the enterprise. To gain momentum and buy-in, you'll need to quickly demonstrate how data and analytic insights can benefit the entire enterprise, as well as individual business/operational units.



Snapshot of Your Peer's Journey

*At one of the nation's **largest health delivery networks**, analysts struggled to use existing analytical capabilities, reuse completed analysis, and connect with the right subject matter experts from the technical, data, and business user communities to execute successful analytic projects. This was due to the organization's scale and decentralized structure. The Enterprise Leader at the health delivery network responded by:*

- *Articulating a vision and engaging stakeholders to gain buy-in; and*
- *Leading the implementation of an analytic knowledge management capability.*

This resulted in a reduction in duplicative efforts, the linking of business users with the right technical experts, and an increased quality of analysis that improved the member experience and generated business value.

COMMON CHALLENGES AND SOLUTIONS

CHALLENGES

DATA

Breaking down data silos so data becomes a readily shared and trusted enterprise resource, and determining how to best harness the data you have can be overwhelming, particularly as the volume of data continues to grow

ANALYTICS

Establishing collective analytic priorities for your organization is not always intuitive, but without them you will end up with every data and analytics problem on your plate

CULTURE

Building and sustaining grassroots buy-in and top-down support and sponsorship for analytics and data-driven decision-making can be difficult, particularly if only pockets of the enterprise are familiar with or using analytics

PEOPLE

Finding yourself with too few resources or not having the right mix of talent where you need it hampers progress to spreading data and analytics enterprise-wide

TECHNOLOGY

Establishing a data/analytics sharing platform/architecture that's flexible enough to accommodate diverse technology needs across the enterprise is critical; you may be stuck with legacy systems that don't meet your needs, or face disagreement on where to invest the resources

SOLUTIONS

DataOps: Establish processes and technologies to collect data from diverse sources and distribute to the right users to generate data products

Data Management: Establish processes and practices to ensure data is accurate, timely, and properly shared and managed throughout its lifecycle

Data Sourcing: Set data terms, definitions, methodologies, MOUs, and service level agreements to support performance monitoring

Data Governance: Establish roles and responsibilities, policies, and procedures to ensure accountability and effective management of data

Data/Analytics Strategy: Collaborate with key stakeholders to define how you will use and prioritize data and analytics to advance broader organizational and business goals

Analytics Use Cases: Identify use cases or opportunities that directly tie to business/mission functions, which then dictate what analytics to perform

Engagement/Evangelism: Employ strategies that educate, empower, and equip staff to make data-driven decisions and embrace experimentation; look to other organizations to learn how they are creatively using data and analytics

Performance Management: Instill the importance of measurement and continuous learning as you execute data and analytics activities to solidify where the organization should go and demonstrate the impact of the investment

Innovation Ecosystem: Introduce hackathons, analytic challenges, or communities of practice/interest to promote the use of analytics, share lessons learned, and evolve a culture of innovation using analytics

Operating Model: Determine how to engage and deploy data and analytics resources (e.g., centralized, diffused, or deployed model) to maximize the potential of the resources you have and meet demand

Talent Strategy: Align talent to your data/analytics strategy, including identifying new staff and retaining existing staff through career paths and retention strategies

Executive Training: Coach leaders on how to lead through data and analytics, break down barriers for their data and analytics staff, and increase analytics literacy across the organization

Data/Analytics Platform: Coordinate across stakeholders to build a platform that's based on a reference architecture and is flexible with the evolving discipline (e.g., open source, catalogue of options, cloud or self-service capabilities); use analytics demand to build a business case for technology investment

BUSINESS/OPERATIONS LEADER: ENABLING ACTIONABLE ANALYTICS

As a Business/Operations Leader, you advance grassroots use of data and analytics from within a business/operational unit.

Giving employees access to the tools and data they need to make data-driven decisions will enable them to think differently about how to solve complex business challenges and inspire an entrepreneurial spirit to create new value for the organization.

WHAT DO YOU FACE TODAY?

Business and Operations Leaders are at the intersection of where the organization's mission, data, and analytics come together. You understand the business and have the ability to see how analytics can be a practical game changer. Like Enterprise Leaders, you grapple with how to best manage data, break down data silos, and pool resources rather than duplicate investments.

Sometimes you don't have the luxury of a seat at the table to set the direction for

analytics or IT systems at the enterprise level, but you can influence the enterprise to drive data and analytics investments. Your domain knowledge and full business context allow you to demonstrate the power of data in solving complex business problems. You might struggle with talent, such as the decision to outsource or develop your own people.

YOUR JOURNEY & MILESTONES

Limited resources require you to seek innovative approaches, like focusing on pilots/proofs of concept, partnering with sister organizations to share best practices and hire/contract resources, and employing self-service tools and subscription analytics. Consider conducting a capability assessment to get smart on where to focus your limited resources and help build a



Snapshot of Your Peer's Journey

A federal financial services organization used the Cloud Analytics Reference Architecture to blueprint a data dissemination platform that empowered users to search and distribute the data most relevant to them. This decreased the time required to return data search results from several seconds to sub-seconds and improved search relevancy. These had been key challenges for the organization for several years. This pilot showed the value of open source data platforms and triggered a broader organizational transformation.

business case for investment. Be sure to establish measurement mechanisms to validate whether you're realizing the expected value from your data and analytics efforts.

COMMON CHALLENGES AND SOLUTIONS

CHALLENGES	DATA	ANALYTICS	CULTURE	PEOPLE	TECHNOLOGY
	Gaining access to the data you need and finding adequate data to make key business decisions is challenging when you have to rely on other parts of the organization (e.g., other operational/business units) or if data silos prevent you from knowing what exists	Producing value from data requires engaging individuals with the greatest domain knowledge. They are often not analytics or software development experts, however, which limits their ability to interact with data and analytics. This will result in missed opportunities to solve problems and apply analytics	Taking people away from mission/business priorities to prove the value of data and analytics may not be an option; internal and external drivers (e.g., lack of leadership buy-in and support) may undermine an analytical focus and limit ideation of new techniques	Determining what resources are needed at this scale and where to focus them is challenging when resources are limited and existing staff lack necessary skills to support analytic projects and meet analytic requests and demand	Acquiring the latest technologies may be out of reach for your business unit or division, which can undermine your analytic capabilities; you have limited authority to impact the purchasing of technology
SOLUTIONS	<p>DataOps: Allow business, operations, analytics, and IT stakeholders to generate data products in a rapid, agile manner for use by systems, applications, and people</p> <p>Data Management: Identify gaps in enterprise-wide management (e.g., quality, security, privacy) and establish your own processes that focus on data sharing</p> <p>Data Discovery: Enable users and applications to rapidly explore and access data assets, leveraging metadata, tools, and techniques</p> <p>Data Architecture: Set standards for data collection, storage, integration, and use that align with the enterprise architecture</p>	<p>Data Visualization: Work closely with business users and subject matter experts to tailor visualizations to all audiences, maximizing the benefit of analytic insights</p> <p>Democratize Analytics: Use self-service analytics and data sharing platforms to easily find, collect, and share data and analytics. Select platforms that create low barriers to entry for business users and domain experts</p> <p>Subscription Analytics: Provide on-demand access to analytics resources to supplement current resources (e.g., for specific analytics techniques or projects)</p>	<p>Innovation Ecosystem: Engage employees in ideation and prototyping to test solutions in quick bursts and bring in data science luminaries to showcase what's possible</p> <p>Pilots/Proof of Concept: Make iterative progress using analytics pilots to answer key questions and demonstrate business value along the way</p> <p>Performance Management: Integrate measurement processes into data and analytics activities to set expectations for results and ultimately demonstrate the impact of the investment</p>	<p>Talent Management: Identify talent who will likely generate the most value, and conduct a skills gap assessment to plan a path forward (e.g., training on tools and techniques)</p> <p>Staff Deployment: Create blended teams of data scientists/analytics practitioners and business users/domain experts to cross-train staff while ensuring solutions are effectively addressing business challenges</p>	<p>Data/Analytics Platform: Collaborate with other parts of the organization or the CIO/CTO to acquire/share a scalable platform, and use open source solutions based on a connected architecture (e.g., Cloud Analytics Reference Architecture)</p>

SERVICE PROVIDER: DEMONSTRATING VALUE

As a Service Provider, you provide services that prove the value of data and analytics for internal customers.

Establishing nimble analytics services will ensure your organization has the infrastructure it needs to create and maintain a data-driven culture, stay responsive and flexible to meet evolving customer needs, and maximize its potential for growth and innovation.

WHAT DO YOU FACE TODAY?

As a Service Provider, you work across business units and departments to provide advanced analytics and data science services, drive innovation, and create pilots to answer specific business questions. You may lack the authority to set the strategy or budget for an IT or data transformation. The good news is you often have strong influence over these key decisions because of the value you generate and can build a capability from the ground up.

YOUR JOURNEY & MILESTONES

Your journey often starts with a data and analytics capability assessment to align investments with current and future customer needs. You then need to advocate for strong data management and governance to reduce the amount of resources spent on upfront data wrangling. Figuring out the right operating model for assigning/deploying resources and managing demand is also critical. You must create transparency into how the organization will identify and select advanced analytics and data science projects, prioritize opportunities, and align resources. To generate and maintain demand for your services, you should publicize the results (quantitative and qualitative), along with the downstream outcomes of your team's efforts.



Snapshot of Your Peer's Journey

A Department of the Treasury analytics team partnered with stakeholders across the agency to significantly improve mission outcomes and inform business decisions through the application of data and advanced analytics. For example, beginning with only a small data set, the team developed models to detect identity theft, saving billions of dollars in the first year of implementation. Over time, the team introduced new data sources, and the quality of the modeling data set improved due to operational processes developed alongside business partners. As a result, the team continued to evolve its models (e.g., sophistication of algorithms, new data sources, data quality), nearly doubling the annual revenue protected from identity theft by year 4. This effort demonstrated the power of analytics and was a launching pad for further analytics work across the agency to aid in detecting fraudulent and noncompliant activities.

COMMON CHALLENGES AND SOLUTIONS

CHALLENGES	DATA	ANALYTICS	CULTURE	PEOPLE	TECHNOLOGY
	<p>Getting data from multiple sources to business and data stakeholders takes more time and is more difficult than many customers expect</p> <p>Providing the right analytics services and products requires being able to retrieve and access the right data and reuse or consume data that supports multiple uses, which is not an easy task in a distributed organization</p>	<p>Creating a set of analytics that can address the full diversity of business challenges and data types faced by the organization can be overwhelming, potentially undermining your team's performance across the board</p> <p>Arming customers with thorough analytics is great, but the outputs have to be easily accessible, of high quality, and understood by a non-technical audience</p>	<p>Influencing key leaders and customers and generating demand can be difficult if you do not have visible, differentiated results to show</p>	<p>Having to frequently reallocate resources to respond to diverse customer needs and/or maximize growth opportunities can negatively impact mission and business success (e.g., productivity)</p>	<p>Understanding customers' data challenges and choosing the best technology to meet their needs is critical, but technology can have limited value if it's designed in a silo or takes a long time to implement</p>
SOLUTIONS	<p>DataOps: Establish the ability for customers to access the right data required to rapidly generate data products</p> <p>Data Harmonization: Identify and combine data assets from one or more sources that are easily and consistently consumable by users and applications across the enterprise</p> <p>Data Orchestration: Arrange, coordinate, and prepare data so it is easily consumed, and you can efficiently deliver data products to end users</p> <p>Data Brokerage: Serve as the centralized forum where data can be represented and people can access or exchange data</p>	<p>Project Prioritization: Ensure your customers clearly understand your focus and priorities. Develop a project submission and selection process including criteria (e.g., greatest impact to business priorities, broadest swath of business problems). Establish usage and impact measures to ensure you are delivering value</p> <p>Democratize Analytics: Provide self-service analytics and data sharing options that make analytics accessible to both technical and non-technical audiences and allow you to focus on more complex efforts</p> <p>Data Visualization: Present data in a way that translates analytic insights for use by the broader (non-technical) population</p> <p>Subscription Analytics: Supplement current analytics resources to respond to swings in demand and unique business challenges</p>	<p>Pilots/Proof of Concept: Use pilots to convince skeptical customers and leaders of the value of data and analytics; combine with a roadshow to showcase the value to leaders/staff face-to-face</p> <p>Service Management: Catalogue available offerings and establish service level agreements to manage provider and customer expectations</p>	<p>Operating Model: Determine how to engage and deploy data and analytics resources in a way that accounts for team size, customer needs, and work complexity (e.g., centralized, diffused, or deployed model)</p> <p>Resource Allocation: Determine the best team structure and the optimal method of allocating work</p>	<p>Data/Analytics Platform: Design or implement a platform that provides the ability to ingest data and make it discoverable, accessible, consumable, and secure</p> <p>User Centered Design: Use user-centered design techniques that ensure technologies/tools meet user needs (e.g., understand user needs upfront, conduct user-centered evaluation of prototypes, and require a minimum level of user participation throughout the design and development of the technology/tool)</p> <p>Big Data as a Service: Stand up and manage big data tools (e.g., Hadoop) through a single service that is tailored to end-user needs</p>

PRODUCT EXECUTIVE: PUSHING THE ENVELOPE

As a Product Executive, you drive the development of business/mission-critical products by applying cutting-edge data science and advanced analytics.

Creating pathways to connect with new and existing data sources and employing user-centered design and sophisticated analytics techniques will help ensure products resonate with customers and translate your data and analytics capabilities into better bottom-line performance.

WHAT DO YOU FACE TODAY?

Product Executives use cutting-edge analytics to develop products that are central to an organization's success. You possess talent, infrastructure, and data ownership and have the most control over data and analytics because of how integral you are to the business. To stay competitive, you demand the most advanced analytic and data science techniques to yield consumer insights and develop your

products and services, and you need to constantly push the envelope to identify new ways of doing business.

YOUR JOURNEY & MILESTONES

Help keep pace with the always shifting maturity scale, particularly new tools and technologies, by conducting a capability assessment that identifies areas for expanded growth and advancement, and follow-up with frequent pulse checks on progress and new developments. You may need to change your bench of talent or reconfigure the pipeline of analytics projects. Also, you have the best talent, but you have to keep that talent by motivating staff in ways that encourage and reward creativity and innovation, such as challenges and independent or special



Snapshot of Your Peer's Journey

A global biopharmaceutical manufacturer wanted to rapidly identify product trends in order to optimize commercial strategies and quickly implement correctly targeted marketing responses. Its approach involved creating an advanced analytics solution and platform that quickly integrated real-world data sources, automatically detected relevant product trends and breaks, and visualized findings for key stakeholders and brand leaders in an easy-to-use dashboard. As a result, the organization was able to glean unique insights to capture market share in a global region and helped elevate its brands to maximize revenue potential.

projects. In many cases, you'll measure your success by your ability to demonstrate return on investment and derive real economic value from your data.

COMMON CHALLENGES AND SOLUTIONS

CHALLENGES	DATA	ANALYTICS	CULTURE	PEOPLE	TECHNOLOGY
	Identifying new uses for and ways to capture data to maximize value generation can be tough if you're only considering the data you currently have	Exploring cutting-edge techniques can bring competitive advantage, but exploration can be time consuming, costly, and lead to nothing of value	Cultivating a data- and analytics- driven culture can veer off track if not continually fostered in meaningful ways	Using standard talent strategies to retain high-value individuals often does not work as well with these unique and high-demand data science staff	Engaging customers interactively and where they are (i.e., digital ecosystem) to achieve marketing/sales goals is key, but you risk getting so focused on the data that you lose sight of the customer and how they engage with the product/mission
SOLUTIONS	<p>Data Governance: Understand use of data by tracking its lineage across time</p> <p>DataOps: Establish a capability to retrieve and access the right data for the right users</p> <p>Data Brokerage: Get connected with internal and external data sources that supplement your analytics and bring new insights</p>	<p>Data Monetization/Return on Investment (ROI): Identify new strategies to make your data work harder and drive bottom-line growth; be methodical and use anticipated ROI to prioritize and select strategies</p> <p>Analytic Prototypes: Continue testing new and cutting-edge techniques (e.g., cognitive computing, machine intelligence) to bring the best and most advanced thinking to the development of your products, but do so with time-boxed prototypes that have limited scope. Use these prototypes to assess ROI and prioritize full implementation</p>	<p>Innovation Ecosystem: Spur diversity of thought and shake things up a bit through challenges (e.g., introduction of a new product line) that build on everyone's competitive spirit</p> <p>Performance Management: Integrate measurement processes into data and analytics activities to reinforce expectations for results and ultimately demonstrate the impact of the investment</p>	<p>Talent Management: Execute tailored strategies to motivate and keep staff through career paths and retention strategies (e.g., profit sharing, independent projects)</p> <p>Staff Deployment: Create opportunities for dynamic work portfolios (e.g., through rotations) to keep staff engaged and constantly learning</p>	<p>Digital Customer Engagement: Connect with customers through the digital ecosystem (e.g., interconnected network of digital touchpoints such as social media and websites) in ways that are smart, personal, convenient, efficient, and relevant</p> <p>User-Centered Design: Use user-centered design techniques that ensure technologies/tools meet customer needs (e.g., understand customer needs upfront, conduct customer-centered evaluation of prototypes, and require a minimum level of customer participation throughout the design and development of the technology/tool)</p>

ARE YOU READY TO TAKE THE NEXT STEP?

Becoming a data-driven organization can be daunting, given how dispersed data tends to be across organizations and how difficult it can be for people to change their behavior. You may be tasked with driving that change — but, depending on your role in the organization, you may not be set up for success. We can help. By embracing your role and using this framework to apply solutions to your unique challenges,

you have the opportunity to position your organization for growth, success, and competitive advantage. Though you may not have ownership over all of the framework elements, you are the catalyst to ensure your organization is moving in the right direction, together.

At Booz Allen, we've helped many of our clients unlock their data and analytics

potential using a strategic approach based on tested and proven fundamentals. This includes actions like establishing effective data governance and management, demonstrating the value of analytics through prototypes/proofs of concept, helping to find and retain the right data and analytics talent, and building an analytics ecosystem that brings together people and technology.



WE'RE HERE TO HELP

To learn more about how we can help your organization along its data and analytics journey, visit www.boozallen.com/catalyst and contact us at catalyst@bah.com.

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Ezmeralda Khalil

"As a catalyst, you have the power and influence to spark a data revolution."



Steve Mills

"Transforming organizations through data and analytics is both challenging and exciting. Catalysts hold the key to success."



Greg Dupier

"Get your data 'house' in order, and you'll be able to bring data to the forefront of every decision."



Susan Michener

"Don't run away from constraints; shatter them by turning skeptics into data believers."



Alexandra Decknick

"As a catalyst, you not only explore the realm of what's possible—you challenge it, pushing your organization to new limits with data and analytics."



Carolyn McGourty

"Catalysts aren't afraid of what the data says, even if it tells a bad story. They embrace it, and use those insights to drive needed change to achieve a better narrative for their organization."

Thank you to the many individuals who contributed their thoughts and ideas to develop this playbook.

ABOUT BOOZ ALLEN

Booz Allen Hamilton has been at the forefront of strategy and technology for more than 100 years. Today, the Firm provides management and technology consulting and engineering services to leading Fortune 500 corporations, governments, and not-for-profits across the globe. Booz Allen partners with public and private sector clients to solve their most difficult challenges through a combination of consulting, analytics, mission operations, technology, systems delivery, cybersecurity, engineering, and innovation expertise.

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