Microsoft

Harnessing your data to drive nonprofit mission success

A roadmap for a robust data strategy

Contents

Introduction: Unleashing the power of nonprofit data

In many nonprofits, data is an underused asset that plays a key role in keeping activities on track and the mission in focus. An organization's ability to collect, manage, protect, analyze, and gain insights from data can make or break its success. Readying data stores in the cloud to take advantage of artificial intelligence (AI) is a key step in charting a nonprofit's path into the future, streamlining operations, innovating processes and service delivery, and making the right decisions.

In this e-book, we discuss how you can develop a data strategy that not only fits your organization's goals but can also spur transformative results in how you pursue your causes. We highlight the foundational principles for developing a data strategy and offer guidance for data cataloging, data governance, and data quality management. We also discuss how you can build data products, democratize data, and drive innovation with AI and agile use cases.

We propose a Microsoft solution—Microsoft Fabric—as an integrated, cloud-based platform on which you can re-create your data practice for outstanding outcomes. Microsoft Fabric is an all-in-one analytics solution for enterprises that covers everything from data movement and data science to real-time analytics and business intelligence. It offers a comprehensive suite of services, including data lakes, data engineering, data integration, and Azure Machine Learning, all in one place.

Learn more about Microsoft Fabric ›

In this e-book, we will also dive deeper into services that are part of Microsoft Fabric, including:

Azure Synapse Analytics is an enterprise analytics service that accelerates time to insight across data warehouses and big data systems. Azure Synapse brings together the best of SQL technologies used in enterprise data warehousing, Spark technologies used for big data, Data Explorer for log and time series analytics, Pipelines for data integration and ETL/ELT, and deep integration with other Azure services such as Microsoft Power BI, Cosmos DB, and Azure Machine Learning.

Learn more about Azure Synapse Analytics ›

Microsoft Purview is a comprehensive set of solutions that can help your organization govern, protect, and manage data, wherever it lives. Microsoft Purview solutions provide integrated coverage and help address the fragmentation of data across organizations, the lack of visibility that hampers data protection and governance, and the blurring of traditional IT management roles.

Learn more about Microsoft Purview ›

From reactive technology purchasing to a strategy for data intelligence

Mission-focused nonprofits, like fast-moving businesses, tend to adopt software when specific needs arise. This often prompts them to acquire multiple tools to analyze, share, safeguard, and manage data. Over time, this can result in a fragmented technology environment that makes it hard to understand data and translate it into mission outcomes.

We offer a less complex and more affordable approach: create a unified data ecosystem that combines structured and unstructured data to enable complete transparency, support sound decision-making, and harness data to drive mission progress. Microsoft solutions such as Microsoft Fabric with integrated Microsoft Purview and Azure Synapse Analytics can serve as the connected, intelligent foundation of your nonprofit's dataverse. A comprehensive data strategy that makes use of these software tools can help you create a coherent data landscape.

Meet model nonprofit

CONTOSO

We use a fictional nonprofit, Contoso, to illustrate a nonprofit's path from facing data dilemmas to mastering data strategy and putting data to work.

Contoso protects and preserves coastal ecosystems worldwide. It raises awareness of these vulnerable environments and collaborates with local communities, businesses, and governments to develop sustainable solutions for protecting them. Contoso provides educational programs so students and community groups can understand coastal ecosystems and support their protection. Its scientific research analyzes the threats to coastal environments and helps develop conservation strategies.

Contoso relies on individual and corporate donors to fund its operations. Its advocacy, conservation programs, research, and engagements with government entities, educational institutions, donors, and volunteers generate potentially valuable data every day.

Immediate cost savings and improvements

Cost savings and a low total cost of technology ownership are often major considerations when organizations conceive a data strategy. Nonprofits that consolidate their disparate data analytics and data management software solutions to deploy Microsoft Fabric can realize substantial cost reductions.

Our illustrative nonprofit, Contoso, achieved substantial savings and operational advantages by consolidating on Microsoft Fabric, including:

- **Reduced licensing fees** from replacing multiple, disparate software tools with a single data management foundation built on Microsoft cloud solutions.
- **Lowered training costs** by eliminating the need to familiarize people with different specialized software solutions.
- **Cut IT management overhead** by reducing the need for specialized skills and user support.
- **Boosted employee productivity** by enabling team members to access and analyze data on their own, taking the right steps more quickly and with reliable data substantiation.
- **Increased the value of data** that's no longer siloed and can now fuel insight, eliminating the hidden cost of underused data.
- **Realized scalability** to grow its data lake and enhance data analytics and management resources without purchasing additional software or incurring downtime to implement them.

Prepare your organization for an effective data strategy

Implementing a data strategy and harnessing data on behalf of your mission requires a sustained transformational effort. For one thing, start with realistic yet high-reaching goals. You also need to help individuals and teams become aware of how data can benefit their work and remain mindful of data opportunities. In addition, you should plan from the beginning to abandon reactive technology purchasing and instead strategize the use of solutions that can support your nonprofit's changing data requirements now and in the future.

Set ambitious yet realistic goals

As many nonprofits experience, the reactive practice of purchasing discrete specialized software tools to address data-related challenges as they arise is counterproductive. It's expensive and hard to plan and budget for, and it results in data silos. Information residing in multiple systems is not available to the entire organization, which greatly restricts its usefulness.

Typically, each standalone software tool used in analyzing, sharing, storing, and protecting data comes with its own licensing and maintenance costs, and also necessitates user training. Team members such as data scientists and analysts spend far too much time navigating a fractured technology landscape to gather data and generate meaningful insights from it.

A realistic data strategy can help you create this turnaround in a coherent, efficient manner. To begin, set ambitious yet attainable objectives that matter in the context of your goals and mission. That can also be an excellent way of involving data users across the organization in taking ownership and contributing to the new data strategy.

CONTOSO

Contoso stakeholders reviewed research and other organizations' experiences to set realistic success criteria for its data strategy. These goals included:

- **Improve collaboration** by breaking down barriers between teams and systems to enable seamless data sharing.
- **Enhance decision-making** based on the complete, accurate, near real-time visibility of relevant information.
- **Streamline processes** by eliminating redundant activities, overlapping software tools, and data silos.
- **Equip individuals and teams** with the tools to respond to changing needs and conditions in coastal ecosystems.
- **Advance insight-driven** growth and innovation.
- **Implement data cataloging** to ensure that information is accurate, secure, and easily discoverable.

Foster a data-driven culture

Your data strategy needs support across the organization to succeed. By advancing data literacy, offering helpful training and resources, and sharing the successes of data-fueled initiatives, you can generate buy-in from your team.

Practical steps you can take to accomplish this include:

- **Design a data literacy program** with training sessions, workshops, and resources to help staff develop their data skills and explore data-driven decision-making.
- **Ask experienced data practitioners to present and share** about the transformative power of data and the benefits of transparency.
- **Develop a data community** to facilitate knowledge sharing, collaboration, and the exchange of best practices related to data management and analytics.
- **Reward and recognize individuals and teams** who contribute to data-centric initiatives and make data-powered decisions.
- **Communicate the impact and value of data-fueled initiatives** to staff, volunteers, and donors by broadcasting success stories, case studies, and data insights.

Achieve the most with optimized cloud resources

You can go a long way toward overcoming budget and resource constraints by maximizing the efficacy of existing resources and reducing costs whenever possible. Cloud-based, highly secure, affordable solutions like Microsoft Purview and Azure Synapse Analytics, both part of Microsoft Fabric, can scale and adjust to keep pace with your organization's growth and changing requirements.

Your technology tools should integrate to enable unrestricted data flows, and you need to be able to manage them with the same controls and governance measures across the entire data environment. The shared-service principle should be a key consideration as you evaluate software solutions.

Taking advantage of shared technology services

In a shared-services model, key resources like enterprise software or data storage are deployed just once for the entire organization, including all business groups and possibly subsidiaries. A centralized IT team manages these resources, but individual stakeholder teams can maintain ownership of their data, data sources, and specialized software tools. A shared-services model can be vastly more economical, efficient, and manageable than a more distributed arrangement, and it can also make it easier to consistently maintain regulatory compliance and stringent security.

To ensure shared-service efficiency:

- **Assess your nonprofit's existing data resources and infrastructure** to identify areas for optimization and cost reduction.
- **Choose cost-effective data software tools and platforms** that meet the organization's needs and are scalable, secure, and usable.
- **Implement data governance to reduce data-related expenses**—for instance, for storage and processing—and improve data quality.
- **Regularly assess the return on investment of data projects** to verify that they deliver measurable value from your investment in resources and technologies.

Figure 1 below summarizes several key elements you should consider as you develop your data strategy. In this e-book, we discuss most of these in detail, but we will not delve into data engineering or data science and analysis. In our context, data engineering refers to the design and architecting of systems which collect, process, and store data from various sources. Data engineering makes data accessible and available for data scientists and business intelligence engineers. Data analysis is the process of systematically collecting, cleaning, transforming, describing, modeling, and interpreting data to discover useful information, inform conclusions, and support decision-making.

Data strategy overview

Develop and implement a cohesive data strategy that includes descriptive and prescriptive analytics and can deliver intelligent insights by connecting, processing, and enabling the analysis of data on a scalable data management foundation.

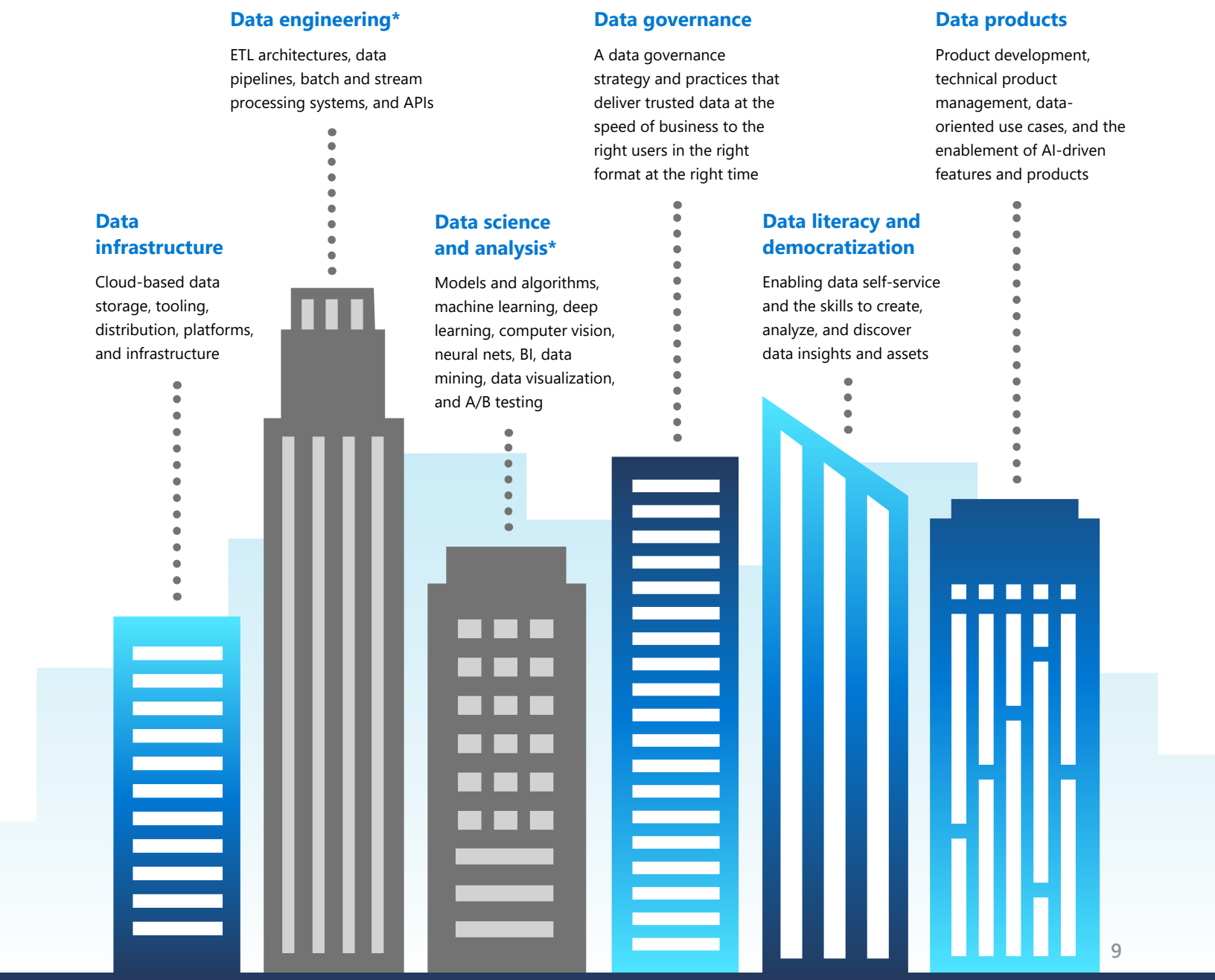

Figure 1. Key elements of a data strategy *Topic not discussed in this e-book

Align the data strategy with your nonprofit's mission

Your data strategy should reflect your organization's goals. A mission-infused data strategy can keep you on the right track as you collect, process, and analyze the data that matters so you can drive sound decision-making, advance innovation, and optimize operations.

The following steps are critical for aligning your organization's data strategy and mission:

1 Build a data lakehouse as your foundation

You need to be able to work on a scalable, robust infrastructure that can house all types of data that's relevant to your organization. We recommend using a data lakehouse architecture as the single, unified data platform that can accommodate all your data as well as analytics, AI, and machine learning workloads. You can implement a data lakehouse in the cloud with Azure Synapse Analytics.

CONTOSO

By drawing on its data lake, Contoso can holistically access all types of data assets to assess its progress toward mission objectives and KPIs.

Number of total cleanup events	Amount of trash collected	Funds raised for cleanups	Number of volunteers engaged
KPI	KPI	KPI	KPI
What data do I need to achieve	What data do I need to achieve	What data do I need to achieve	What data do I need to achieve
Structured and unstructured	Structured and unstructured	Structured and unstructured	Structured and unstructured
Use cases and creating a digital feedback loop	Use cases and creating a digital feedback loop	Use cases and creating a digital feedback loop	Use cases and creating a digital feedback loop
Lake-based data foundation			

Figure 2. Contoso's data lake enables data use cases, data products, and KPIs

2 Define OKRs to document your organization's key goals

Objectives and key results (OKRs) provide you with a framework for driving mission impact by setting tangible, organizational goals and tracking their success. Review and update OKRs at regular intervals to make certain that they continue to be relevant and suit your goals and priorities. Data projects and initiatives—as well as the data collection, analysis, and usage practices that are part of these efforts—must support the OKRs and your organization's ethics and values.

CONTOSO

Contoso might adopt OKRs like the examples below:

- **Boost cleanup activities** to allow more rapid recovery of coastal ecosystems.
- **Increase community participation** throughout regions of engagement.
- **Ensure financial health** for the next 10 years at a minimum.
- **Involve local and regional governments** in supporting and sponsoring coastal ecosystem recovery.

3 Set up KPIs to demonstrate accomplishments toward OKRs

Key performance indicators (KPIs) establish the metrics that help you measure and assess the progress toward what your OKRs define as your nonprofit's goals and priorities.

CONTOSO

At Contoso, practical KPIs could include the following:

- **Coastal cleanup events** during a certain period.
- **Trash collected** during these cleanup events.
- **Volunteers engaged** in cleanup activities.
- **Funds raised** for coastal preservation during a fundraising initiative or financial reporting period.
- **Partnerships** newly established with businesses and local governments.

4 Build data products to present data findings for KPIs

Next, link your KPIs to data products. Data products are the outputs you generate from data processing and analytics, which inform the insights you provide to nonprofit leadership and team members to help them in their decision-making.

Read more about data products on page 25 ›

CONTOSO

For Contoso, viable data products connected to KPIs could include:

- **A dashboard** that displays the number of coastal cleanup events Contoso organized, together with their locations and dates.
- **A report** on the amount of trash collected during cleanup events, with visibility into type and location.
- **A volunteer engagement tracker** that indicates how many volunteers participated in cleanup activities and what their demographics were.
- **A fundraising report** listing the funding sources and amounts raised for coastal preservation projects.
- **A partnership map** to help visualize the partnerships that Contoso established with local governments and businesses.

5 Implement data use cases across your operations

By making use of a lakehouse in Microsoft Fabric, your organization can realize several data use cases to feed into the KPIs.

Read more about data use cases on page 26 ›

6 Enable digital feedback loops for continuous improvement

Based on the findings from the data use cases, your nonprofit can keep close tabs on its current accomplishments and strategize intelligently to realize even greater successes. As you advance your mission this way, you can update your OKRs to incorporate what you've learned from past experiences and set more ambitious and realistic goals.

Read more about digital feedback loops on page 28 ›

Action items for realizing your data strategy

Your roadmap lists the key steps you need to take to realize your organization's data strategy by using the Microsoft solutions that will be most helpful—Microsoft Purview, Azure Synapse Analytics, and Microsoft Power BI, all part of Microsoft Fabric.

1 Establish a data lake

- Assess the current data infrastructure and data sources.
- Set up a data lake storage account in Azure, meeting security and compliance requirements.
- Migrate existing data from various sources to the data lake storage by using Azure Data Factory.

Read more about data lakes on page 20 ›

2 Deploy an Azure Synapse Analytics workspace

- Create an Azure Synapse Analytics workspace as the central hub for data-related activities.
- Integrate the data lake storage account with the Microsoft Fabric and Azure Synapse Analytics workspace for seamless data access and processing.

Read more about workspaces on page 19 ›

3 Integrate the data ecosystem

- Evaluate the organization's existing data tools and platforms, and identify integration requirements.
- Use the integration capabilities of Microsoft Fabric to connect the data-processing engine with tools like Microsoft Power BI.

Read more about integration on page 22 ›

4 Implement data governance with Microsoft Purview

- Set up a Microsoft Purview account and connect it with the Azure Synapse Analytics workspace.
- Automate data discovery, classification, and governance policies by using Microsoft Purview.

Read more about data governance on page 16 ›

5 Develop data products and agile use cases

- Facilitate stakeholder conversations to identify key goals and develop data products and agile use cases.
- Use Microsoft Fabric for advanced analytics and AI solutions.

Read more about data products and agile use cases on pages 25 and 26 ›

6 Promote data democratization and collaboration

- Establish data ownership and stewardship roles, and provide training and resources for team members so they can be successful in these functions.
- Implement a mesh approach for data democratization, empowering individual nodes while maintaining a central data lake.

Read more about data democratization on page 24 ›

7 Monitor, optimize, and scale

- Regularly assess the performance of the data ecosystem by using the tracking and monitoring capabilities of Microsoft Fabric.
- Identify successful innovations and scale them across the organization to maximize their impact.

8 Integrate AI services to foster innovation

- Take advantage of integrated AI to take another step away from the reactive purchasing of disparate software products.
- Link Azure AI services like Text Analytics, Sentiment Analysis, Document Intelligence, or Azure AI Vision to the Microsoft Fabric platform.
- Rely on these AI services to streamline operations, predict trends in the nonprofit sector, personalize donor experiences, and make data-fueled decisions.

Read more about AI on page 26 and about digital feedback loops on page 28 ›

CONTOSO

By integrating Azure AI services with Microsoft Fabric, Contoso accelerates its mission impact and operational transformation as it:

- **Achieves more from its existing investments** in a unified, cloud-based data landscape.
- **Gains an enhanced cerebral network** to deliver the intelligence to help realize its goals.
- **Makes the most of its data lake** to enable strategic thinking and decision-making.
- **Enables digital feedback loops.**

Nonprofit maturity map: Phase 1–3 roadmap (example)

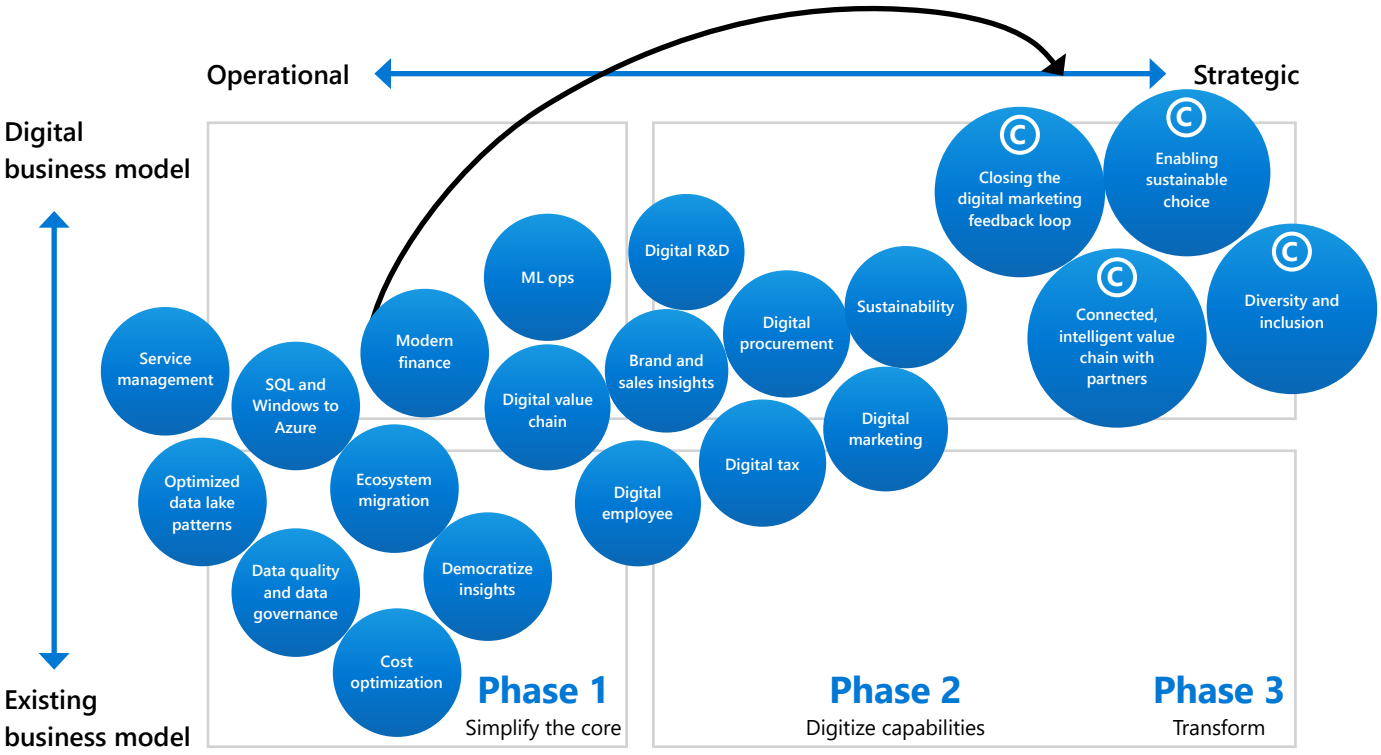

Figure 3. Nonprofit digital maturity map

Build a data catalog and elevate data quality

A data catalog serves as a centralized inventory of all available data assets in your organization. The effectiveness of the data catalog depends greatly on the quality of your data. For that reason, we discuss data catalog and data quality together.

Create a data catalog and establish data governance

If your data catalog is well-structured, it helps team members discover, access, understand, and use high-quality data. That, in turn, makes it easier for them to collaborate and make the best possible decisions. Microsoft Purview can be the perfect solution for streamlining the creation of a data catalog and enabling multicloud data governance.

Below, we briefly describe the essential steps in building a data catalog with Microsoft Purview.

1 Define data sources

Start by identifying and listing all data sources across the organization, including databases, file systems, cloud storage, and third-party applications. Involve stakeholders and decision-makers from the nonprofit's various teams to maintain a complete view of the organization's data landscape.

2 Document data assets

For each data source, provide detailed documentation regarding the data's purpose, origin, and format as well as any metadata. This information will help your organization's data users understand the context and potential value of the data.

3 Categorize data assets

Organize your data assets into logical categories, such as by department, function, or data type. This will help team members quickly locate relevant information and understand what that data can help them accomplish.

4 Implement a Microsoft Purview data map

Use the data map feature in Microsoft Purview to automatically discover and classify data across multicloud and on-premises environments. By visualizing your organization's data landscape, a Microsoft Purview data map makes it easier to identify relationships and dependencies between data assets.

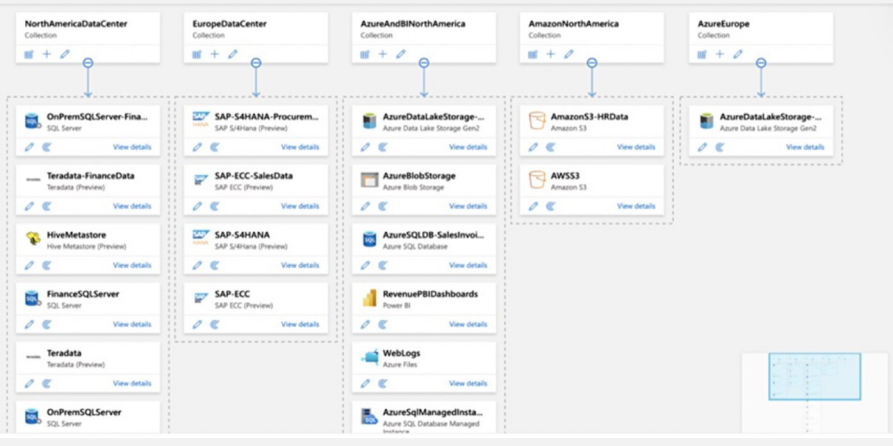

Figure 4. Example of a data map created in Microsoft Purview

5 Apply data governance policies

You need to establish and enforce data governance policies to ensure the best possible data quality, security, and compliance. They should regulate aspects of data use and management like access, retention, and lineage. Microsoft Purview can automate policy enforcement by means of an integration with Azure Policy and Azure Private Link.

6 Address data quality concerns

You don't want to include outdated or inaccurate data in your data catalog. To forestall issues arising from poor data quality, set up data validation rules and regular audits within Microsoft Purview to keep data quality at the highest level possible. In addition, we recommend that you assign data stewards in each operational team to oversee data quality and integrity.

7 Maintain strong data security

Sensitive and proprietary data should not inadvertently be exposed to unauthorized access. Working with Microsoft Purview, you can automatically classify sensitive data and apply appropriate access controls so that only authorized users can access protected data assets. Keep access controls current and updated so they are always compliant with changing data protection regulations.

8 Promote adoption and empower users to work with the data catalog

Make your data catalog available to users through the Microsoft Purview Data Catalog feature, which offers a searchable interface for discovering and understanding data assets, and train them on how to use the data catalog. Their feedback will be invaluable as you continue to improve the catalog's usability and accuracy. Share success stories and involve your entire organization's data community in improving the catalog's quality and usefulness.

9 Integrate with existing data analytics and processing tools

Microsoft Purview comes with extensive integration capabilities. They allow you to easily connect your data catalog with your organization's data management and data insight solutions and platforms such as Microsoft Power BI, Azure Machine Learning, and Azure Synapse Analytics, all part of Microsoft Fabric.

10 Drive ongoing improvement

Don't let your data catalog get stale. Regular reviews and updates will ensure its accuracy, relevance, and alignment with your nonprofit's data needs. The automated discovery and classification features in Microsoft Purview can simplify this effort. It's best to schedule periodic reviews to evaluate the effectiveness of the data catalog and identify areas for improvement.

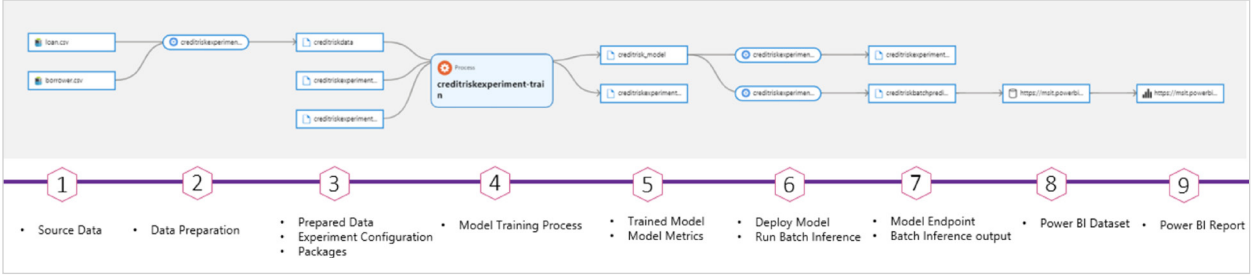

Figure 5. Example of a machine learning journey in Microsoft Purview

Elevate data quality to ensure compliance, security, and trustworthiness

Your nonprofit should be proactive when it comes to data quality because the trustworthiness of its data is key to making sound decisions confidently and engaging effectively with constituents and communities. For these reasons, we consider data quality to be one of the most important aspects of your data strategy. You can rely on Azure Synapse Analytics to create and manage a unified information ecosystem with outstanding data quality.

Let's touch on the main considerations when it comes to data quality.

Accuracy

To maintain data accuracy, we recommend establishing a data validation process that checks for errors and inconsistencies and duplicates at the point of entry. Regularly audit data sources for accuracy and work with data stewards to correct any issues. Implement data quality tools like Azure Data Factory to automate data validation and cleansing tasks.

Security

Protecting sensitive data from unauthorized access is ethical and sensible, and it builds trust inside and outside of the organization. To do so, implement robust access controls, encryption, and data masking techniques to safeguard information. Deploy Azure Private Link and Microsoft Entra ID to manage access to data stored in Microsoft Fabric and other Azure services.

Trustworthiness

Data users and stakeholders can trust your data when it's reliable, complete, and transparent. To that end, establish data lineage tracking to provide visibility into the origin, transformation, and usage of organizational data. Azure Synapse Analytics and Azure Data Factory offer data lineage capabilities to help you track data movement and transformations across your data landscape.

Timeliness

Use tools such as Azure Data Factory or Azure Logic Apps to set up automated data pipelines that keep your data fresh and relevant. Regular updates managed with automated data ingestion and transformation will keep your data current.

Compliance

Compliance with data protection regulations that apply to your organization and region can be less complex and challenging when you treat it as part of your data strategy. Incorporate data protection principles such as data minimization and purpose limitation into your data management practices. Use a proven tool like Microsoft Purview to automate data classification and enforce data governance policies that meet compliance mandates.

Quality monitoring and improvement

Keep tabs on data quality metrics to identify areas for improvement and maintain adherence to data quality standards. Implement data quality dashboards with Microsoft Power BI to provide data and technology managers with real-time insights into the organization's data quality performance. Involve all data stakeholders in providing feedback on data quality and enlist their support in realizing ongoing data quality improvements. Your data quality improvement measures should include identifying the root causes of data quality issues as well as implementing corrective measures and validating their effectiveness.

Create a coherent data environment

Solutions like Microsoft Purview and Azure Synapse Analytics, both part of Microsoft Fabric, can help you realize a unified data ecosystem that combines structured and unstructured data, integrates various tools for working with data, and meets the organization's data quality standards. Let's review the main overall steps in this process before we more closely consider the critical task of integrating your data management and analytics technologies.

Using Microsoft technologies to unify your data landscape

A unified data ecosystem is key to eliminating data silos, democratizing data access, and putting data to work to drive mission success. The process of building a coherent data ecosystem involves the following key steps:

1 Become familiar with the Microsoft solutions

As you prepare to use Microsoft Purview and Azure Synapse Analytics to realize a cohesive data landscape, it helps to understand their most helpful features. Azure Synapse Analytics provides an integrated analytics service that brings together big data and data warehousing. As mentioned, Microsoft Purview is a multicloud data governance solution that can help your nonprofit discover and manage data. Relevant capabilities in this context include:

- Data ingestion and transformation through Azure Data Factory.
- Data warehousing and analytics with Microsoft Fabric and Azure Synapse Analytics.
- Integration with Azure Machine Learning for advanced analytics and AI.
- Seamless connectivity with Microsoft Power BI for data visualization and reporting.
- Data discovery, classification, and governance through Microsoft Purview with a data lineage pipeline reaching directly into Azure Synapse Analytics.

2 Set up an Azure Synapse Analytics workspace

Begin by creating an Azure Synapse Analytics workspace as the central hub for managing and orchestrating all data-related activities on your data platform. The workspace provides a unified, centralized interface for accessing data pipelines, data warehousing, ML models, and data visualization tools.

3 Establish data lake storage

In Azure, you should create a data lake storage account to store all types of data, including structured, semi-structured, and unstructured data. As part of your data lakehouse architecture, data lake storage is cost-efficient and scalable to your nonprofit's changing needs. Connect the data lake storage account to the Azure Synapse Analytics workspace to enable seamless data access and processing.

4 Implement data pipelines

Use Azure Synapse Analytics or Azure Data Factory, part of Microsoft Fabric, to create data pipelines that automate data ingestion, transformation, and storage management. Design your pipelines to extract data from various sources, transform it as needed, and load it into the data lake storage and Azure Synapse Analytics workspace for further analysis and processing.

5 Integrate Microsoft Purview for data governance

Connect Microsoft Purview to the Azure Synapse Analytics workspace to gain advanced data governance capabilities. Rely on Microsoft Purview to automate data discovery, classification, and lineage tracking across the data ecosystem. Implement data governance policies and enforce them through integration with Azure Policy and Azure Private Link to achieve stringent data security and flawless compliance.

Read more about data governance on page 16 ›

6 Optimize data warehousing

Work with Microsoft Fabric to create a scalable, high-performance data warehouse for structured and semi-structured data. Design and optimize data models to support your organization's reporting and analytics needs, keeping in mind that users should easily be able to access and query data.

A data warehouse is relational in nature. The structure or schema is modeled or predefined by business and product requirements that are curated, conformed, and optimized for SQL query operations. While a data lake holds data of all structure types, including raw and unprocessed data, a data warehouse stores data that has been treated and transformed with a specific purpose in mind so that it can be used to source analytic or operational reporting. Refer to this page to learn more about the differences between data warehouses and data lakes.

7 Integrate advanced analytics and AI

Take advantage of the integration of Azure Synapse Analytics workspace with Azure Machine Learning to build advanced analytics and AI solutions that allow data-driven innovation. Develop machine learning models, train them on your data, and deploy the models within the Azure Synapse Analytics workspace to generate real-time predictions and insights.

Read more about AI on page 26 ›

8 Connect to data visualization tools

Once you deploy Microsoft Power BI, part of Microsoft Fabric, or other data visualization tools, you can create interactive reports and dashboards that enable users to explore and analyze data. In your nonprofit's developing data culture, they can also benefit from self-service analytics.

9 Keep optimizing

Monitor the performance of the data ecosystem, including data pipelines, storage, analytics processes, and data governance practices. Draw on the monitoring and optimization features of Microsoft Fabric to identify and resolve performance bottlenecks so your data ecosystem remains efficient and cost-effective.

Integrate your digital resources

Integration of data processing engines with analytics and other data tools can help you accomplish more with your organization's data and technology tools. Below, we list the key steps and considerations you should keep in mind as you integrate:

1 Evaluate existing tools and identify integration requirements

Conduct an inventory of the organization's existing data tools, including data sources, analytics platforms, visualization tools, and AI services such as Azure Cognitive Services. Assess the current level of integration between these tools and identify any gaps and bottlenecks that get in the way of unimpeded data flows.

2 Define integration standards

Integration standards and best practices should guide the implementation of data-processing engine integrations. These standards should address details like data formats, APIs, authentication, and security. You need to align them with your organization's data governance policies and compliance requirements.

3 Connect seamlessly

Microsoft Fabric offers advanced integration capabilities that can help you connect data processing engines with various data tools. As you work on integrations, you can rely on several important features, including:

- Built-in connectors for popular data sources such as SQL databases, NoSQL databases, and cloud storage services.
- Support for REST APIs and integration with Azure Logic Apps for custom integrations.
- Integration with Azure Machine Learning and AI services, including Azure Cognitive Services, for advanced analytics and AI capabilities.
- Seamless connectivity with Microsoft Power BI and other data visualization tools for reporting and analysis.

4 Integrate Cognitive Services

With Azure Cognitive Services, Microsoft offers a suite of AI capabilities that include prebuilt models for tasks such as natural language processing, image recognition, and text analytics. To integrate Azure Cognitive Services with Microsoft Fabric, follow these steps:

- Set up the required Cognitive Services APIs in the Azure portal.
- Connect to the Cognitive Services APIs from Microsoft Fabric using built-in connectors or custom integrations via REST APIs.
- Incorporate AI capabilities into data processing workflows, such as sentiment analysis, image recognition, or language translation.

5 Implement data orchestration

Use Azure Data Factory or Azure Logic Apps to create data pipelines that automate data movement and transformation processes across your various tools. Design pipelines to ensure efficient data flow and minimize redundancies, thereby allowing users to access and analyze data in near real-time.

6 Manage integration performance

Review the performance and usage of data integrations to identify potential bottlenecks, inefficiencies, and areas for improvement. Here, too, the monitoring and optimization features of Microsoft Fabric can help you diagnose and resolve any issues.

7 Plan for scalability

As your organization's data needs evolve, you may need new tools and integrations. Plan for scalability by selecting solutions that come with robust integration capabilities, and design data architectures that can accommodate growth. Consider the potential need for additional AI services or data sources and build your data ecosystem with the flexibility to accommodate these requirements.

8 Create a central data catalog

Read about data cataloging on page 16 ›

Democratize data across your nonprofit

Data democratization makes data accessible, understandable, and usable for everyone in your organization. This effort will be most successful when you foster a data-centric culture that helps your team understand what they can achieve with data to advance your organization's goals.

You can broaden and accelerate data democratization if you provide training, resources, and support to help people develop their data skills and make the most of democratized data. You should also encourage collaboration and knowledge sharing across the organization to propagate best practices for the use of data-driven insights. Observing and documenting user engagement, the use of data products, and the actual impact of data-fueled decisions and activities on mission outcomes will help you make your data discipline and democratization progressively more effective.

A mesh approach can support data democratization

In an organization's data practice, a mesh approach combines the benefits of decentralized data ownership with the advantages of a centralized data infrastructure. You leave data ownership with teams that are accountable for certain data assets and data sources. At the same time, you implement the data strategy we discuss here so that you can simplify and centralize data analytics and data management, allowing the entire organization to benefit from its data assets. Aspects of the data environment like data governance, pipelining, and processing in a data lake or data warehouse will be centralized, but individuals or teams can, for example, create and share data products.

When some teams in a nonprofit operate with a high degree of autonomy, a data mesh approach may help develop a democratized data practice that best fits the organization's culture. It can help you realize all the benefits of data-fueled management and decision-making while reducing dependencies on IT to support data access and analysis.

Streamline the building of your mesh environment with the following measures:

Build on Microsoft solutions

Microsoft Fabric offers several capabilities that help you ease into a mesh approach for data democratization, including:

- **Flexible data storage and processing** options through data lake storage and analytics.
- **Seamless integration with data visualization tools like Microsoft Power BI** for self-service analytics.
- **Integration with Microsoft Purview** for data cataloging and governance.
- **Support for a wide range of data sources and formats,** allowing teams to create a variety of data products.

Roll out data products to the organization

Data products are curated datasets or analytical outputs that serve specific business needs, such as reports, dashboards, or machine learning models.

Read more about data products on page 12 ›

Follow these steps to define and implement data products as you democratize your data:

- Work with the organization's teams to **identify questions and goals** that data could help address or realize.
- **Determine the data requirements** for each goal or question, including data sources, formats, and granularity.
- **Design data products that meet these requirements** so they are accessible, understandable, and usable for data users. Microsoft Fabric includes many features that support data ingestion, transformation, storage, and analysis. Your organization can take advantage of these data processing and analytics capabilities to accelerate mission success and drive desirable impacts.
- **Assign data owners and stewards** on each team to oversee the creation, maintenance, and quality of data products. Data owners are responsible for defining data requirements and ensuring that data products align with business objectives, while data stewards manage data quality and adherence to data governance policies.

Implement data cataloging and governance

Read about data cataloging and governance on page 16 ›

CONTOSO

Contoso might want to optimize its fundraising efforts, monitor the health of coastal ecosystems, or improve volunteer recruitment.

Contoso may need to access historical environmental data, donor information, and volunteer databases to drive progress toward its goals.

Gain future resilience with innovative use cases, AI, and continuous feedback loops

Think of AI as another step in democratizing data and thereby driving nonprofit mission success. AI, especially generative AI, can augment organizations' data strategies to give data analytics a greater realm of practical applications and prepare users to work more efficiently with data. Integrating AI into your data strategy results in new data that can be helpful in achieving your organization's mission. Data managers should refine and update your nonprofit's data processing systems for the best possible performance with AI data.

CONTOSO

AI can rapidly perform the predictive analytics needed to help Contoso data users understand trends in coastal ecosystems and properly focus their activities, while machine learning can free people's time from routine chores by automating them.

Generative AI augments your data strategy

GPT-4 from OpenAI is available in Azure OpenAI Service, which means that generative AI is also accessible for Microsoft Fabric. This opens a whole new realm of opportunities for your organization to understand data and develop presentations, visualizations, predictions, and other content vehicles based on the organization's data.

CONTOSO

Contoso can use Azure Synapse Analytics to analyze water quality data in certain locations to pinpoint the causes of pollution, design visualizations to illustrate to what extent coastal regions are impacted, and use the information to structure effective campaigns and educate volunteers and communities.

Innovating data use cases

Democratized data and agile use cases can help you innovate your service delivery, operational processes, and organizational strategy by empowering individuals to make data-driven decisions and quickly pivot your nonprofit to surmount any challenges. Let's highlight the main steps in driving innovation by means of agile use cases.

1 Implement and scale innovation

Gather input from your employees and stakeholders to assess your organization's current processes, challenges, and goals, and see whether the horizon of what's possible may be expanding with data intelligence. Nourish a culture of experimentation by adopting a scalable test-and-learn approach to innovation. Compare the outcomes of each use case to its success criteria and use data insights to identify additional opportunities for improvement.

CONTOSO

Contoso might identify areas where data-driven insights can help improve volunteer recruitment, optimize fundraising efforts, or monitor the health of coastal ecosystems more effectively. The organization can also scale its efforts. For instance, if a social media analysis–driven awareness campaign proves successful in one region, Contoso can consider scaling it to other regions.

2 Develop agile use cases

Agile use cases are specific, well-defined scenarios where data-driven insights can be applied to address business challenges or opportunities. For each use case:

- Define the objectives, scope, and desired outcomes.
- Identify the data requirements, including data sources, formats, and granularity.
- Design data products and analytics solutions that address the use case requirements.
- Establish success criteria and metrics to evaluate a use case's effectiveness.

CONTOSO

Contoso's agile use cases might include:

- Predicting the impact of climate change on coastal ecosystems by using historical data and machine learning models.
- Analyzing social media data to identify trends and interests in regard to coastal environments to refine awareness campaigns and communications.
- Optimizing resource allocation for beach cleanup events by analyzing past event data and local pollution levels.

3 Gain the benefit of Microsoft solutions

Use the data processing and analytics capabilities of Azure Synapse Analytics to develop and deploy appropriate analytics for each use case. Employ the data catalog and governance capabilities of Microsoft Purview to create data products that are easily discoverable, highly secure, and compliant. All these services, and more, are part of Microsoft Fabric.

4 Collaborate and share knowledge

Encourage collaboration by enabling cross-functional teams to participate in data-centric projects and share their knowledge, insights, and best practices. Deploy collaboration tools like Microsoft Teams to facilitate communication and knowledge sharing.

5 Empower users

Provide ongoing training and resources to help team members develop their data skills and make the most of democratized data. Encourage users to explore data sources and tools to nurture a culture of continuous learning and innovation.

Unceasing progress toward mission success with digital feedback loops

Imagine a digital feedback loop as a spiral. A nonprofit takes an action, such as a fundraising campaign. Then it collects internal and external data on the workload and cost to bring this campaign to life, like the organization's level of donor and volunteer engagement, its use of communication channels and marketing tools, and the detailed outcomes of each individual step as well as the campaign overall. Next, the nonprofit assesses its data findings, sees opportunities to work more efficiently or drive better campaign outcomes, puts these into practice, and repeats the process after the next wave of fundraising. The result is continuous improvement based on data. In a data-aware organizational culture, using digital feedback loops doesn't have to be more work than maintaining the status quo, but it can greatly increase your mission impact.

On the next page, we sketch several use cases and feedback loops that could apply to our sample nonprofit. Maybe they can help you spur your own ideas.

CONTOSO

Contoso use cases and digital feedback loops

Contoso relies on Azure Synapse Analytics, part of Microsoft Fabric, to process and analyze the data that makes digital feedback loops possible.

Coastal erosion monitoring

Contoso deploys Internet of Things (IoT) sensors along coastlines to monitor erosion rates. These sensors collect data on wave activity, weather patterns, and sediment movement. Once siloed, this data is now democratized and accessible through a unified data lake. Contoso uses Azure Synapse Analytics to process and analyze this data, creating a feedback loop that informs its conservation goals. When data indicates increasing erosion, Contoso can shift resources to the impacted areas and collaborate with local communities to protect their shorelines.

Donor engagement analysis

In the past, Contoso struggled to understand donor behavior and preferences, and fundraising campaigns were not always as effective as desired. Thanks to a digital feedback loop, Contoso can now track and analyze every touchpoint with donors, from opening emails to visiting the organization's website to donor behavior. In the data lake, Azure Synapse Analytics accesses donor-related data to identify patterns and trends. Equipped with new insight, Contoso can personalize its outreach and develop campaigns that resonate better with donors. Continuously looping feedback ensures that each campaign is better than the previous ones.

Volunteer coordination and impact measurement

Coordinating Contoso's volunteers used to be a logistical nightmare, with data scattered across multiple systems. Today, volunteer information and program results are stored in the data lake. Azure Synapse Analytics enables the organization to match volunteers with opportunities that fit their skills and interests. Data analysis measures the success of each initiative involving volunteers and enables a feedback loop that helps refine volunteer management. Volunteers can achieve greater beneficial outcomes to help coastal ecosystems and are more content in working with Contoso.

Research and advocacy

By collecting environmental data and combining data insight with policy research, Contoso advocates for effective legislation to protect coastal areas. As research findings feed into the data lake, Azure Synapse Analytics helps disseminate this information to the people who can benefit from it, including policymakers, partner organizations, and the public. The digital feedback loop ensures that Contoso's advocacy is backed by the most current and accurate information, and amplifies its voice and influence to drive beneficial change at local, national, and global levels.

Pollution mitigation and prevention

Contoso has deployed thousands of smart buoys with sensors to detect pollutants in the water. When this data was stored and managed in multiple systems, it was difficult to respond promptly to pollution-causing events. Today, Contoso saves the information from these buoys in its data lake and analyzes it with Azure Synapse Analytics. When a pollution spike occurs, the system triggers an alert, and the organization can immediately mobilize cleanup teams. The feedback loop includes data from cleanup results, thereby refining future pollution mitigation and prevention.

CONTOSO

Community engagement and education

Contoso has developed an app that allows community members to report litter, chemical pollution, and other conditions that impact coastal environments. Each observation feeds into the data lake, where Azure Synapse Analytics processes the information to track engagement levels and identify opportunities for strengthening community education in addition to driving appropriate mitigation measures. This feedback loop allows Contoso to boost community involvement and improve environmental stewardship.

Wildlife conservation

Contoso's wildlife conservation projects rely on data from tracking devices placed on marine animals. Before the organization implemented Azure Synapse Analytics and built a data lake, each species' data was siloed, which made meaningful analysis difficult. Today, in a coherent data environment, Contoso can cross-reference animal movement patterns with environmental changes, thereby gaining insights that support conservation strategies. Because of the continuous feedback loop at work, each intervention benefits from recent data and can be more effective than previous conservation efforts.

Sustainable funding

To address the challenge of financial sustainability, Contoso has developed a feedback loop that correlates funding efforts with project outcomes. By analyzing this data in Azure Synapse Analytics, Contoso can demonstrate the tangible impact of donations, thereby generating more funding. The loop continues to improve the organization's financial stability while increasing donor trust and retention.

Shaping policies

Contoso uses Azure Synapse Analytics to evaluate environmental data and correlate it with policy developments. An endless feedback loop allows the organization to provide lawmakers with compelling evidence of the need for environmental protection. As policies change, the feedback loop helps Contoso adapt its strategy and keep its advocacy effective and relevant.

Next steps

By creating a data strategy based on modern cloud technology, you can empower your nonprofit's leadership and staff to harness data to drive mission success. At the same time, you can realize substantial cost savings and optimized processes to achieve your goals faster and more efficiently.

We hope you found this e-book helpful in thinking about your organization's data and what it could help you accomplish. If you want to explore the data opportunities in your nonprofit or find out about Microsoft solutions, grants, and offers for nonprofits, get in touch with the Microsoft Tech for Social Impact team.

Contact us to set up a conversation to have your questions answered.

Connect with us:

- @msftnonprofits
- facebook.com/msftnonprofits
- linkedin.com/showcase/microsoft-for-nonprofits

PUBLISHED BY
Microsoft Corporation
One Microsoft Way
Redmond, Washington 98052-6399

Author: Christian Bucher