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Data Share: The Future of Data Management in Investment Management

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Abstract
Data has turned out to be the blood of the investment management firms, and there are many challenges in terms of controlling it. Between data silos and standalone technology, companies may be unable to locate an enterprise look. And, unless the data is harmonized on the organizational level, then very little can be done with it to extract insights, expand businesses and evolve to the dynamic and challenging financial market. Moving data, pipelines and operations to the cloud is not a magic bullet and many of the wealth management companies have been moving data to the cloud in a bid to manage it. Organisations also need a defined approach as well as a solid structure to ensure the accessibility, catalogue, quality and governance of their data. Engaging in data sharing is a strategy that can enable an enterprise to support four pillars including quality, accessibility, catalogue and governance of cloud data management.Organizations are adjusting to the changing and speedy information environment by leveraging data sharing and data integration to maximize the value of data. Data integration provides one accessible data landscape that allows businesses to dismantle inner silos. This accessibility is then shared with external entities to encourage data collaboration and maximize data use. The combinations of these complementary methods give businesses the power to make well-informed decisions and be innovative.

Keywords: ***Investment Management, Wealth Management, Data management, Data Share, Data strategies.***

1. Introduction
Data is the life blood of investment management firms yet handling the data effectively is fraught with a lot of challenges. Between the data silos and isolated technology, companies may have a hard time locating an enterprise perspective. And, when the data is not harmonized throughout the organization, then this data cannot be used to derive insights, expand businesses and to respond to the rapidly changing and challenging financial market.

Moving data, pipelines and operations to the cloud is not the magic bullet as many wealth management firms have turned to the cloud to manage data. Companies should also possess a clear roadmap and a strong outline of how to ensure the accessibility, catalogue, quality and governance of their data. An enterprise can maintain these four pillars of cloud data management with the help of a secure data share.

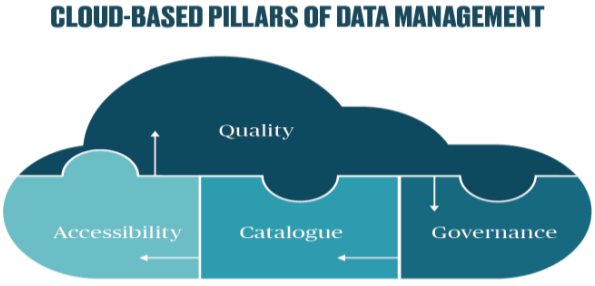

FIGURE 1 Cloud based pillars of data Management

2. What is a Data Share?
A data share, as the name implies, is a data consumption solution tool, which exchanges the data of one cloud-based account with the data of other cloud-based accounts. More precisely, a share consists of a bundle of data provisions on a cloud account that can be subscribed to by other data consumers. Moreover, shared database objects cannot be changed, since they are read only and can not be modified. This facilitates easy coordination of

various teams, departments or external partners. This will remove the duplication of data and will save cost associated with storing data and all parties will work with the latest version of the data. It also enables data sharing within and across accounts (intra- and cross-account sharing), which increases the flexibility of collaboration.

2.1 A Powerful Data Share Team:

The elasticity of a Snowflake share allows the consumer to augment their data sets and the consumer can share back with the provider. As the data are in a single location, consumers are aware of where they can get data, when they require it. Additionally, the exceptional differentiator of Snowflake is the absence of file transfer, hence data can be read on the spot.

Customers without a Snowflake account can access a data share through an authentication procedure by connecting the cloud account of their choice to the Snowflake instance of BNYM. In both cases, the almost immediate availability of quality data provided to firms gives them the means to cooperate, invent and expand.

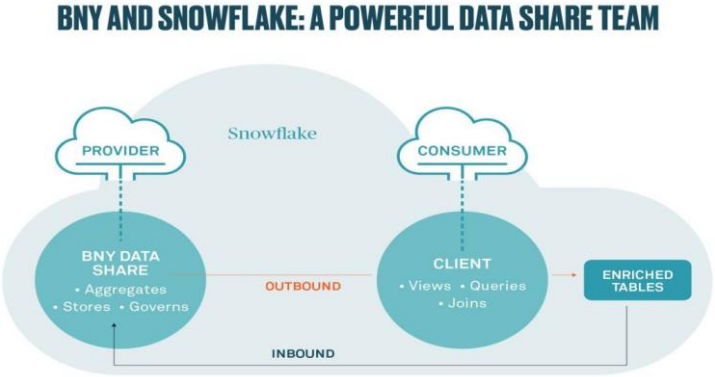

FIGURE 2 A Powerful Data Share Team

2.2 Providers:

Any account that produces shares and offers them to other accounts in order to be consumed is called a data provider. You are a data provider and share a database with another or other accounts. In each of the databases you share, it offers the use of grants to give selective access control to the chosen objects in the database (i.e., you grant access rights to one or more I selected objects in the database). You may create as many shares as you want and add as many accounts to a share as you want. You may be interested in using a listing or a data exchange, in case you want to give a share to numerous accounts.

2.3 Consumers:

Any account that decides to form a database out of a portion given by a data provider is termed as a data consumer. Being a data consumer, after adding an imported database to your account, you are able to access and query the objects in the database as well as you would access and query the objects in any other database in your account. You are free to consume as many shares as you desire at the data providers, however you can only create a single database with each data provider.

2.4 Accessibility: The Collaboration Key.

Regardless of the aspect of wealth management being addressed, including the estate planning, investment management, business succession, and so on, it requires access to the data. By being able to access data within the enterprise, teams are in a position to collaborate more easily, which, in turn, helps them to:

- Address business issues and enhance performance and results.
- Innovate to develop new products, services and business models.
- Increase differentiation in order to have a competitive advantage.

A cloud data share offers nearly real time access to data. In the Snowflake data share of BNYM, BNYM gathers data, which has been compiled by several sources and subsequently made available to the consumer through subscription or authentication protocol. In so doing, data consumers in BNYM and data consumers who are clients in BNYM will be in a position to readily obtain the data they require. Moreover, the updates of the cloud are almost instant, and thus, the consumers could be confident that they operate with the most recent information.

2.5 Catalogue: With the advantage of a Data Superset

However, availability of data is inadequate. Consumers should also be in a position to locate the correct data at the appropriate time. A data share provides a value-added, user friendly data catalogue. The specific data marts of a share are huge databases grouped by a common principle. A data share provider just as a library has different parts (e.g., Accounts, Transactions, Market Value), a library has different parts (e.g., Fiction, Young Adult, Nature). In every share subscribed by consumers, information is recorded and compiled.

An example would be a firm that merely subscribes to streaming custody data but does not subscribe to the derived data that gives performance information. Both the firms can:

- scan and index sources of data, cross-platform, cross-environment.
- Find what is missing and redundant in their data world.
- Make data storage and performance optimum.

The outcome is a data superset of wealth management data fit to purpose. Data consumers are aware of the data assets they possess, where they are located, their organization and ownership.

2.6 Quality: Trust in Innovation.

Knowledge of location and availability of data is wonderful, yet information integrity and quality is also very important to meet business demands. On the one hand, version control problems that may occur with repeated consumer use are reduced by a share. As a share is a read only file the downloading, interrogating and scrutinizing of the data by consumers will not influence the quality of the data.

Conversely, a share can allow providers to deploy automatic capabilities that scan the information and quantify the quality metrics. An example such as Snowflake allows pre-defined data metric functions (DMFs) to be used to monitor the data quality, but also allows other providers of data shares to create their own DMFs, to schedule assessments, and to define when quality alerts are to be triggered.

Moreover, a share can also offer real-time data quality dashboards and reports that help you monitor and visualize the quality of your data, and therefore minimize errors, risk and time wastage on assessing data to determine inconsistencies.

2.7 Governance: The Foundation for All Pillars

Governance refers to policies, standards, and processes that will specify the way data is collected, stored, accessed, and utilised throughout the enterprise. Data governance Cloud data governance can offer the resources and processes to administer data policies, roles, and permissions. A data share enhances:

- Compliance: Awareness of the state of your data and its location assists you to comply with various regulatory and industry standards.
- Accountability: With well defined roles and responsibilities of data stewards and data engineers of a data share, teams can trust in quality data and achieve customer and partner objectives.
- Data-driven culture: Right data made readily available promotes data literacy throughout the organization
- Data governance is therefore inseparable with the data inventory, quality and accessibility. Of the greatest importance, a data share enforces all encryption, backup and recovery policies, subscription policies and access policies.

3.The Value of Data Sharing for an Investment Management:

The sharing of data by organizations is not a new era with the internet as organizations have been sharing data long before the advent of the internet, but with the advent of digital literacy, technology and cloud use, data sharing is now real-time and global. There has never been easier and cheaper information storage and transfer technologies. Consequently, the policies and regulations have had to change to minimise the risks of sharing data. The concept of data sharing is not as simple as access to data to conduct analysis and generate income, it helps to open the doors between business departments within the company and outside. The teams may collaborate or operate separately, and each of them has access to the same current source of data. This is due to the fact that the amount and the variety of data available have been able to enable different teams within the organization to contribute towards wider organizational objectives.

The synergization of different sources of information, including research data, operational data or customer feedback, enhances the performance of those services and adds value to that services. As one instance, data analysis can be applied in deciding the business units, which have access to data, on the basis of the market trends and customer preferences and create effective marketing strategies.

In addition, data sharing enables governmental and non governmental authorities to exchange their information in a safe, legal and controlled way. A key component of data sharing hygiene is that data producers should document and label datasets meticulously with the correct metadata that can be used to ensure reproducibility. Clear definitions of descriptions make sure the shared data is easily found, discovered and understood by others.
The Future of Privacy Forum1 (FPF) examined data-sharing collaborations between companies and academic scientists and concluded that such collaborations could expedite socially advantageous research, increase access to valuable sets of data, as well as enhance research results reproducibility. Due to the increase in data-sharing, stakeholders are taking active initiatives to mitigate risks and data breaches through the utilization of data-sharing agreements (DSAs) and privacy-enhancing technologies (PETs).
IBM has demonstrated an exemplary case in terms of the implementation of strict privacy and security policies in its data-sharing operations, such as the use of PETs to deanonymize data before it is shared with universities, nonprofits and research laboratories. The strategy of IBM helps in scientific discovery and safeguards sensitive information which supports safer and more successful collaboration. The example is the case of the interactive work of IBM and Melbourne Water in Australia where the goal was to examine the data to minimize energy emissions. In the COVID-19 pandemic, IBM performed SARS-CoV-2 genomic sequence processing and submitted more than 3 million sequences to a research repository.
Another interesting application of the value of data sharing is by the US nonprofit benefits data trust Benefits Data Trust (BDT).2 Benefits Data Trust (BDT) encourages data exchange between states and organizations in the US healthcare and education sector. BDT helps to increase access to important public programs, including the Supplemental Nutrition Assistance Program (SNAP) and Medicaid through data-sharing agreements.
With BDT, the Department of Social Services in South Carolina compared monthly Medicaid and SNAP lists, upon which they identified eligible persons not in the program. This program has resulted in a 20,000 plus increase in SNAP enrollments since 2015 and has provided access to nutrition support to susceptible populations. These, along with other similar efforts in Pennsylvania, have been successful, with data sharing contributing to enrollment of about 240,000 individuals into assorted public assistance programs since 2005.

4. Options for Sharing:

The options of sharing data are:

- Listing, where you provide one of your data products, a share, along with other metadata, to an account or account(s),
- Direct Share where you share certain database objects (a share) directly with another account in your region,
- Data Exchange, where you establish and operate a collection of accounts and provide a share to that collection,
- clean room, where you can share data and specify which queries can be executable against our data.

TABLE 1 Options for Sharing

Data Sharing Mechanism	Share With Whom?	Auto-fulfill Across Clouds?	Optionally Charge for Data?	Optionally Offer Data Publicly?	Get Consumer Usage Metrics?
Listing	One or more accounts in any region	Yes	Yes	Yes	Yes
Direct share	One or more accounts in your region	No	No	No	No

5. How does Secure Data Sharing work?

Secure Data Sharing does not require any real data to be copied and moved between accounts. Every sharing utilises the Snowflake services layer and metadata store. Shared data does not occupy storage space on any given

consumer account and thus, will not add to the monthly charges of data storage to the consumer. Consumers are only charged with the computation resources (i.e. virtual warehouses) to query the imported data.

Since no information is transferred or shared, Secure Data Sharing configuration is fast and simple on the provider side and access to the imported information is almost instant on the consumer side:

- The provider then constructs a portion of a database in their account and access to particular objects in the database. The provider is also able to share information of various databases, provided that these databases are of the same account. An account or accounts are then added to the share which may comprise your own accounts (provided you hold more than one account).
- A read-only database is built on the share on the consumer side. This database can be configured with the same, standard role based access control that Snowflake offers to all system objects.

In this architecture, it would allow a provider network that is able to share information with many consumers (including inside their own organization) and consumers that are able to access imported information of a number of providers.:

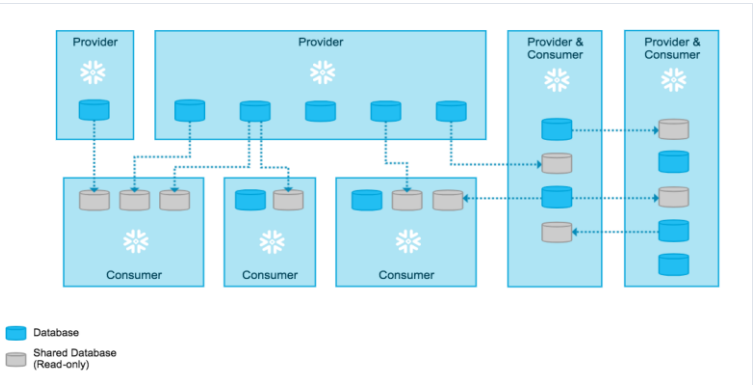

FIGURE 3 Secured Data Sharing

6. The Risks in Data Sharing:

Although there are numerous advantages that are presented by data sharing, there are also risks. Inappropriate sharing of sensitive information may present an organization with regulatory, competitive, financial and security risks. There is little control of the quality and availability of data by the data consumers. Poor quality of data may also contain implicit prejudices against gender, race, religions or ethnic groups.

To ensure the data across the organization is handled in a secure, accurate and consistent manner, data governance processes put down the rules, principles and best practices to govern the data. An efficient governance restricts access to ensure data is used by the authorized personnel only. The governance also secures, categorizes and assists in the assisting of ensuring that data is utilized in accordance with legal and regulatory agencies.

All organizations have both legal and ethical responsibilities to ensure that the privacy of the customer information under their care is not compromised. Data sharing can be safely accomplished with the aid of such technologies as encryption and data redaction protecting privacy. Nonetheless, there is the risk that when there is no communication between data producers and consumers, misinterpretations may arise leading to wrong assumptions in the creation of reports or in the participation of data-driven decision-making programmes.

Indicatively, in 2012, Knight Capital Group3 experienced a trading follies as a result of communication gap and disorganized action by teams and they lost USD 440 million in a span of 45 minutes. An update of the software unintentionally loaded an untested, undocumented and dormant chunk of embedded software. Since the developers failed to communicate the possible effects of the changes to the systems of traders, the erroneous trades were executed within a short period of time, which caused a tremendous financial loss.

Expensive exchange of data particularly using extract, transform and load (ETL) processes, which are resource-consuming operations, has also been a traditional barrier to widespread data sharing. The quality and best practices of data governance may also prove to be a challenge particularly when handling vast amount of data. The process of sharing huge datasets across networks safely is time-consuming and extremely technical and demands a significant funding of storage and infrastructure.

There has to be strict protective measures and training to protect sensitive data in regards to data security. Data-sharing processes on networks and platforms expose information to threats, including unauthorized access, information breaches and computer attacks. Moreover, companies have to act within the framework of complicated data privacy legislation and regulations to share data with third-party partners, stakeholders or third-party vendors.

7. Best Practices in Data Sharing:

The adoption of the best practices in data sharing can assist the organizations to optimize their benefits and reduce the risk.

- Frequent evaluations can be used to determine the success of the data, the information flow in and out within the organization as well as its culture concerning data and take action to mitigate the issues.
- Open source data-sharing data solutions can enable organizations to prevent vendor lock-in as well as to open the door to a multitude of community-developed integrations with leading open source data-processing frameworks and business intelligence applications, lowering the costs of technology and infrastructure.
- Data management will be responsible through clear governance policies and clear data-sharing protocols. In its absence, team members may be working on faulty information and the management may make faulty decisions on the basis of faulty information thereby exposing the organization to the dangers of making wrong decisions.

A data marketplace enables organizations to exchange their data and data products safely and leverage them. Data marketplaces are of a few type:

- A company-only data marketplace is used to share data.
- A private data marketplace is that of sharing data with trusted partners.
- A data marketplace is to be used to connect data consumers and providers.

The public data market places participants on a safe platform to buy and sell data and other services associated with it which in effect guarantees high quality and consistency of data offered by the providers. A data marketplace can also enable companies to gain third-party data to supplement their existing datasets or provide and sell new data products and services.

8. Conclusion

There are tools to access, explore, and visualize data on cloud-based data platforms in order to perform different kinds of reporting and analytics. An effective high-quality data access through a secure data share is the basis of a scalable model of access to data where and when you need it. A seasoned partner, interoperable platform and fit-for-purpose products like a data share can assist wealth management firms to scale their activities in the cloud. With the right tools to data inventory, quality, governance, and accessibility, firms will resolve many historical data issues and effectively establish and maintain a contemporary culture of data-driven development.

This article concludes by repeating that data sharing opens up door to quicker insights, higher security, and more adaptable reporting. You can be dealing with high workloads, simplifying access across teams or keeping performance lean, this is a powerful integration that ensures your data catalog offers maximum value.

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Conflicts of interest

The authors have no conflicts of interest to declare

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