

WHITEPAPER

Empowering Finance with Data Literacy

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Overview

Data is highly dynamic and continuously evolving in the finance industry based on market trends, economic outlook, regulatory changes, and company performance. In this changing environment where every organization continues to be digitized, generating more and more data, employees are required to possess knowledge of working with financial data, identify trends, collaborate, and innovate to avoid any delays in critical decision-making.

This whitepaper helps to understand the importance of data literacy, the critical roles in the financial industry that require data literacy, and recommended framework to embark on this journey.

Intended audience

This paper's intended audience is individuals who consume and facilitate financial data, i.e., CFO, CDO, Senior Management, Finance personas, and IT department.

This paper is intended for:

- 1) Business leaders and executives, like CFOs and Senior Management, responsible for making decisions based on data and need to understand how to interpret and use it effectively.
- 2) Providing recommended approach and framework to CDOs for establishing data literacy programs.
- 3) Empowering business, finance, and data analysts to discover, explore, and generate insights.
- 4) Anyone who wants to learn more about data literacy and how it can be applied in different areas of finance.



Data analytics in finance

The financial department plays a crucial role in overseeing financial operations in an organization, including accounting, taxation, risk management, compliance, and Extended Planning and Analysis (xP&A). Data insight is becoming increasingly important to financial functions as it can improve the accuracy and efficiency of financial operations while reducing the organization’s exposure to risk and providing strategic insights. For instance, financial analysts use analytical insights to support accounting, reporting, and budgeting, while risk management and compliance analysts use data to detect fraud and support internal audit processes.

Below is a depiction of various sub-divisions within finance, along with the system of interaction, roles, and analytical use cases they solve.

Department	Accounting		Treasury		Taxation		Risk Management & Compliance		Extended Planning & Analysis (xP&A)	
Supporting systems	General Ledger, Accounts Payable and Receivable, Inventory Management, Budgeting and Planning, Tax Systems, Data Warehouse		Treasury Management System (TMS), Payment System, Accounting Systems, Market Data Services, Data Warehouse		Tax Planning & Compliance Software, Tax Analytics Tools, Electronic Tax Filing Systems, Data Warehouse		Risk Management Software, Data Warehouse		– General Ledger – Enterprise Resource Planning (ERP) – Financial Management System (FMS) – Budgeting and Forecasting System – Data Warehouse	
Business Persona	Persona	Use cases they solve	Persona	Use cases they solve	Persona	Use cases they solve	Persona	Use cases they solve	Persona	Use cases they solve
	Financial Analysts	Financial data analysis, trend identification & insight generation for management	Treasury Analyst	Cash flows monitoring & forecast, cash management, risk management, investment optimization and decision-making	Tax Analyst (Direct & Indirect Tac)	Tax data trend identification & pattern analysis, future tax liabilities forecast, tax compliance, tax planning and insight generation for management	Risk & Compliance Analysts	Risk trend analysis, potential risk forecast, risk management strategies, risk/compliance performance metrics development	Planning Manager	Monthly/quarterly/annual financial budgeting, forecasting, revenue, S&OP, HR planning, long-range planning, insight generation for management
	Auditor	Anomaly detection, internal control review	Cash Manager	Cash balance analysis, cash management optimization	Tax Operations Analysts	Process improvement analysis, tax regulations compliance monitoring & reporting	Internal Auditor	Financial & operational data analysis, control & process inefficiencies identification	Planning Analyst	Financial model development, financial performance forecast, revenue and gross margin analysis & monitoring, trend analysis
IT Persona/ Roles	<ul style="list-style-type: none"> Reporting Analyst/Data Analyst - Operational & analytical BI report and visualization dashboards development & maintenance Data Engineers – Data gathering, applying standardization & business rules and storage for efficient retrieval of data Data Scientist – Develop predictive model & recommendations based on trends/patterns and statistical techniques Data Privacy and Security Analysts - Sensitive data management, Data access and usage management, security risks analysis, security performance metrics monitoring & development 									

Diagram 1: Sub-division of finance departments

As businesses strive to improve their performance and achieve complete digitalization, gaining deeper insights through financial and operational data for CFOs and their teams has become more crucial than ever. To achieve this, finance professionals must be skilled in analyzing and interpreting financial data and possess knowledge of related tools and techniques. However, in a rush to become data-driven, many organizations prioritize creating a unified data platform to process and analyze data from multiple siloed systems over creating a self-service, and collaborative workplace.



Commonly faced challenges in understanding and interpreting data

Let us narrow our focus to the personas mentioned in “Diagram 1” and the difficulties they face due to a lack of data culture.

- **Difficulty in reading and studying data:** Finance data is complex, with information about various customer segments, products, geographies, etc., and analysts may find it difficult to understand and extract the necessary information. When combining data from varied sources, they may face challenges such as not understanding the meaning of certain metrics or terminologies, filters to apply, identifying trends/anomalies, and determining the impact of specific factors such as pricing changes, seasonality, or customer behavior on revenue. Also, the same data may be referred to in different structures by different departments. E.g., the Finance and Sales department may use different terminology for the same data element. Due to these factors, a financial analyst spends most of the time in consolidation, cleaning up and organizing data before analyzing based on metrics such as gross margin, fixed vs. variable costs, year-over-year growth rates, debt/equity ratio, Earnings Per Share (EPS), and many others.
- **Limited ability to identify data quality challenges:** Financial Analysts, Planning Managers, and Treasury Analysts deal with data daily. By understanding the data and analyzing the pattern, analysts could identify data quality issues and take necessary actions to fix them. If the analyst cannot understand the terminology and data itself, it would lead to difficulty in identifying the quality issues and coordinating with IT to fix them through data cleansing and standardization processes. This, in turn, would result in inaccurate reporting of their analysis and recommendations.
- **Lack of technical skills:** According to FSN’s [Innovation in the Finance Function Survey](#), “67% of CFOs and their senior financial executives say that too many of their resources are tied up with legacy systems and traditional ways of working – leaving little time to innovate. A tech-savvy workforce and a culture of learning, sharing, and making mistakes are part of the footprint of an innovative organization. True innovators outperform their competitors across all three dimensions; speed to reforecast, forecasting accuracy, and time to close the books.” Though there are technological advancements, spreadsheets remain the most popular for financial analysis knowing the limitation it has for data consolidation and visualization. As financial recommendations are becoming more data-driven, financial analysts must have the technical skills to work with large data sets, creating graphs/charts using data visualization tools. A lack of technical skills can lead to their inability to derive the right insights at the right time. They may also be unable to leverage the tool’s full functionality, which could provide valuable insights to the management team.



- **Lack of self-service, data discovery, and searchability functionality:** In many organizations, data is siloed, difficult to access, and having no knowledge repository/metadata leads to frequent IT assistance. Also, the absence of a catalog of existing reports/insights can result in redundant efforts by financial analysts to recreate the same findings. E.g. to create a gross margin report, one needs access to product sales and cost of goods numbers. But if data is not searchable or available for planning managers or analysts, this can slow down the decision-making process and reduce the agility of the finance function.
- **Lack of collaboration and communication skills:** Finance persons should not only be able to generate insights but also collaborate and communicate the insights to the team and management in a way that is easy for them to understand and share feedback. E.g., a Financial Planning Manager should effectively communicate the impact of a higher debt/equity ratio and steps to be taken to mitigate the risk to higher management.
- **Data security and privacy:** Data is an asset that greatly benefits financial institutions. But if data usage is not governed or falls into the wrong hands, it can lead to financial loss and reputational damage for the organization managing the data. So, data access must be governed to ensure that the right people access the right data.

Above are a few challenges due to which the full potential of data is not unlocked. According to [Forrester's research](#), "70% of employees are expected to work heavily with data by 2025, up from just 40% in 2018. It's clear that organizations that build data literacy into their workplace culture will gain a competitive edge in our increasingly complex global economy."



What is data literacy and its importance in finance?

According to *Forrester*, “On average, between 60% and 73% of all data within an enterprise goes unused for analytics.” One of the ways to improve this ratio is by investing in building a data-driven culture and empowering people to use data to drive decisions.

Before getting further, let us understand the definition of data literacy. Data literacy is the ability to read, understand, interpret, and communicate with data. It involves a combination of technical skills, critical thinking, and communication skills, which are essential for making informed decisions. In finance, data literacy would also mean having the ability to understand how other departments are using data and how to collaborate with them to consume financial data generated by them. E.g., the granularity of product hierarchy in sales would be specific to a Chart of Account (CoA), and finance should be able to consolidate it for a different CoA.

Though data literacy is now widely accepted as one of the critical skills for individuals and organizations working in financial industries, the demand for data literacy versus actual data literacy is highly disproportionate.

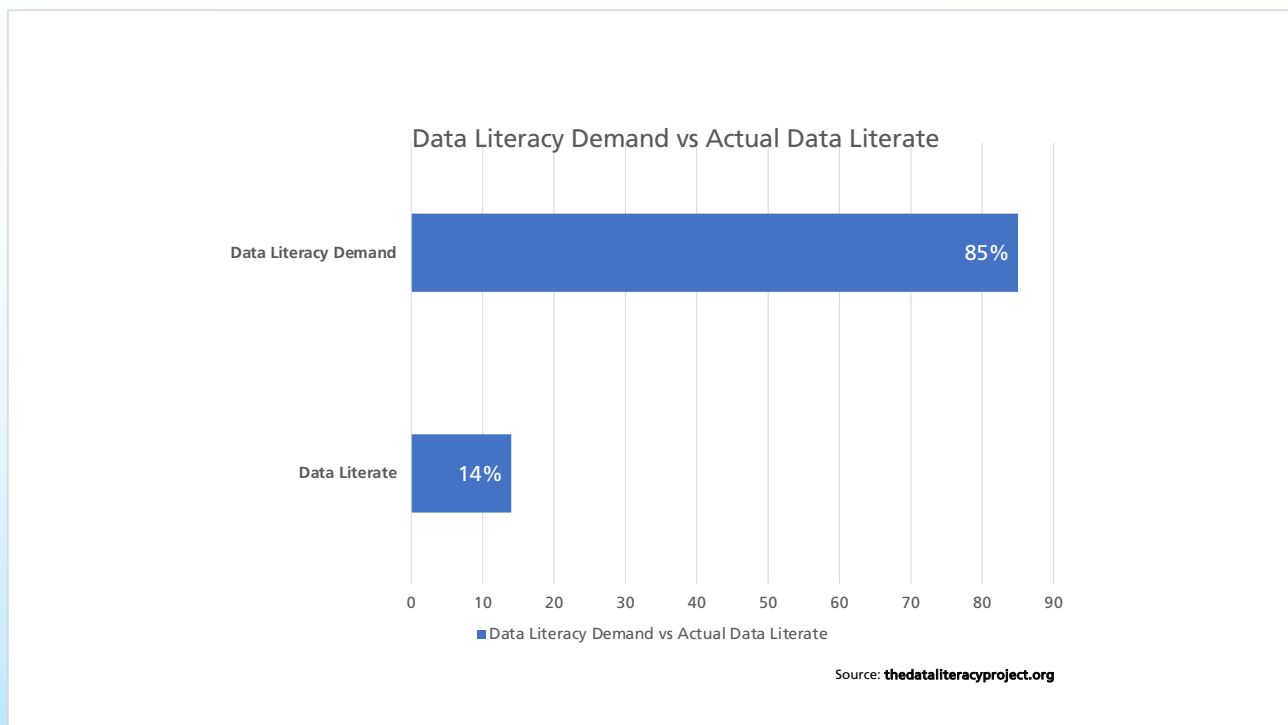


Diagram 2: Data literacy demand vs. current state



As per a survey by thedataliteracyproject.org, 85% of the C-level executives interviewed from the finance and banking industries feel that data literacy skills will greatly benefit their organization. Companies have started realizing that data literacy skill is key to accurate decision-making and hence vital to their success. But only 14% of the employees are comfortable reading, analysing, and working with data and can be considered data literate. In its recent Annual Chief Data Officer Survey, Gartner ranked data literacy as the second biggest roadblock to CDO's office's success.

Importance of data literacy in finance

In addition to overcoming the persona-based challenges mentioned earlier, below is the summary of values that data literacy provides to the finance department:

- **Improved decision-making:** In the financial industry, decision-making is critical. Data literacy can help financial professionals to make better decisions by enabling them to analyze data accurately and identify trends and patterns.
- **Enhanced risk management:** Finance professionals need to assess and mitigate risks effectively. Data literacy can help them identify potential risks by analyzing data and making informed decisions.
- **Improved efficiency:** Data literacy can help automate routine tasks, improve workflows and reduce manual errors. This can lead to improved efficiency and cost savings.
- **Improved customer service:** Finance professionals need to understand customer needs and preferences. Data literacy can help analyze customer data and provide personalized solutions for customer needs.
- **Competitive advantage:** Companies that invest in data literacy are more likely to gain a competitive advantage over their peers. Data-literate finance professionals can make informed decisions, leading to improved business outcomes and increased profitability.



Data literacy maturity level

Data literacy maturity process begins with mastering the fundamentals and progresses towards achieving a complete state of maturity based on your role. Let's explore the path toward data literacy and discover the key steps to achieve complete mastery.

- **Read and understand:** Ability to read and understand the data insights in both raw and visualized form.
- **Generate insight:** Ability to explore, prepare, transform, analyze, and present data while utilizing fundamental presentation skills.
- **Interpret and literate thinking:** Ability to make business decisions based on descriptive, predictive, and prescriptive data insights
- **Visualization and storytelling:** Ability to create intelligent dashboards and explain the data insights in a narrative format using charts, graphs, and other forms of visualization.

The below diagram represents the data literacy maturity level and the required set of data capability.

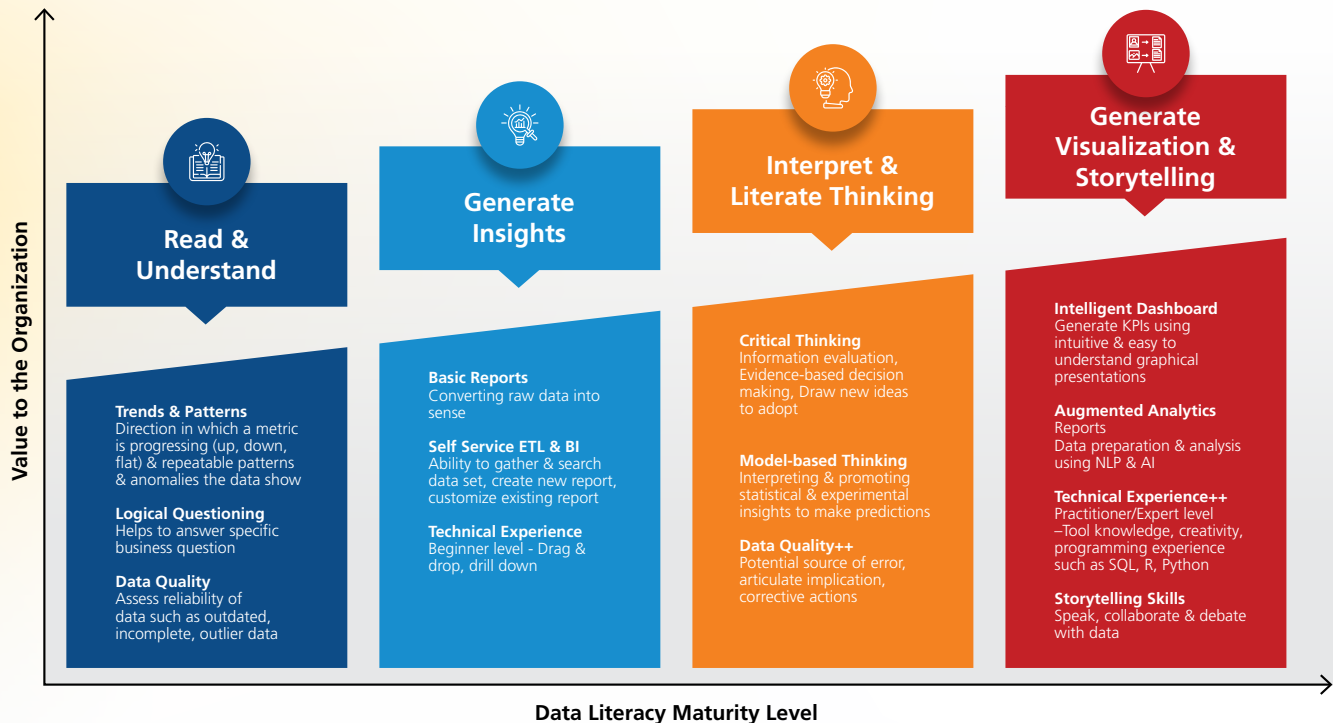


Diagram 3: Data literacy maturity levels



While the ultimate goal for all individuals in the financial sector is to achieve the highest level of maturity, each persona will have a distinct maturity level that aligns with their roles and responsibilities.

The table below depicts the ideal literacy competency level for each financial persona.

Expert
 Intermediate
 Beginner

Persona	Role	Read & Understand		
		Trends & Patterns	Logical Questioning	Data Quality
C-level Executive	CFO, Controller of Finance, VP, Senior Management			
Business Persona - Accounting	Financial Analyst			
	Auditors			
Business Persona – Treasury	Treasury Analyst			
	Cash Manager			
	Risk Manager			
Business Persona – Taxation	Tax Analyst			
	Tax Operations Analyst			
Business Persona – Risk Management & Compliance	Risk & Compliance Analysts			
	Internal Auditor			
Business Persona – FP & A	Planning Manager			
	Planning Analyst			
IT Persona	BI/Data Analyst			
	Data Engineers			
	Data Scientist			
	Data Privacy and Security Analysts			



Expert
 Intermediate
 Beginner

Persona	Role	Generate Insights	
		Basic Reports	Self-Serve ETL & BI
C-level Executive	CFO, Controller of Finance, VP, Senior Management		
Business Persona - Accounting	Financial Analyst		
	Auditors		
Business Persona – Treasury	Treasury Analyst		
	Cash Manager		
	Risk Manager		
Business Persona – Taxation	Tax Analyst		
	Tax Operations Analyst		
Business Persona – Risk Management & Compliance	Risk & Compliance Analysts		
	Internal Auditor		
Business Persona – FP & A	Planning Manager		
	Planning Analyst		
IT Persona	BI/Data Analyst		
	Data Engineers		
	Data Scientist		
	Data Privacy and Security Analysts		



Expert
 Intermediate
 Beginner

Persona	Role	Interpret & Literate Thinking		
		Critical Thinking	Model Based Thinking	Data Quality++
C-level Executive	CFO, Controller of Finance, VP, Senior Management			
Business Persona - Accounting	Financial Analyst			
	Auditors			
Business Persona – Treasury	Treasury Analyst			
	Cash Manager			
	Risk Manager			
Business Persona – Taxation	Tax Analyst			
	Tax Operations Analyst			
Business Persona – Risk Management & Compliance	Risk & Compliance Analysts			
	Internal Auditor			
Business Persona – FP & A	Planning Manager			
	Planning Analyst			
IT Persona	BI/Data Analyst			
	Data Engineers			
	Data Scientist			
	Data Privacy and Security Analysts			

Persona	Role	Generate Visualization & Storytelling		
		Intelligent Dashboard	Analytics Reports	Storytelling
C-level Executive	CFO, Controller of Finance, VP, Senior Management			
Business Persona - Accounting	Financial Analyst			
	Auditors			
Business Persona – Treasury	Treasury Analyst			
	Cash Manager			
	Risk Manager			
Business Persona – Taxation	Tax Analyst			
	Tax Operations Analyst			
Business Persona – Risk Management & Compliance	Risk & Compliance Analysts			
	Internal Auditor			
Business Persona – FP & A	Planning Manager			
	Planning Analyst			
IT Persona	BI/Data Analyst			
	Data Engineers			
	Data Scientist			
	Data Privacy and Security Analysts			

Diagram 4: Persona-wise expected data literacy competency expectations



Data literacy framework

A framework for data literacy can help organizations develop and implement effective training and development programs. Below is a recommended framework for data literacy in the finance:

- **Determine business objectives:** To establish a data literacy framework, the initial step is to determine the business goals that the organization intends to accomplish. These goals should be Specific, Measurable, Achievable, Relevant, and Time-bound (SMART) and aligned with the organization's overall strategy.
- **Evaluate the current situation:** After identifying the business objectives, the next step is to assess the organization's current level of data literacy. A skills gap analysis will be performed to determine the current skill levels of finance professionals and to recognize areas where further training is needed.
- **Create curriculum:** Based on the findings of the skills gap analysis, a curriculum is developed that includes training and development programs designed to enhance data literacy abilities. The curriculum will be customized to meet the specific needs of the finance department and covers topics such as data analysis, data visualization, data interpretation, and data-driven decision-making.
- **Choose delivery methods:** The delivery methods for the training and development programs will be chosen based on the learning preferences of finance professionals. These methods include in-person training, online courses, webinars, and self-paced learning modules.
- **Assess learning outcomes:** To ensure the effectiveness of the training and development programs, it is essential to evaluate the learning outcomes of professionals. This can be done through assessments, exams, and other evaluation methods, and feedback should be obtained from finance professionals to identify areas for improvement.
- **Foster collaboration:** Finance professionals should collaborate with data scientists and IT professionals to gain insights into data analysis and interpretation. Cross-functional teams should be formed to identify areas where data can be utilized to improve business outcomes.
- **Pursue continuous improvement:** The data literacy framework should be regularly evaluated and improved to ensure its efficacy and alignment with the evolving needs of the finance department. Feedback should be obtained from professionals, and changes should be made as necessary.



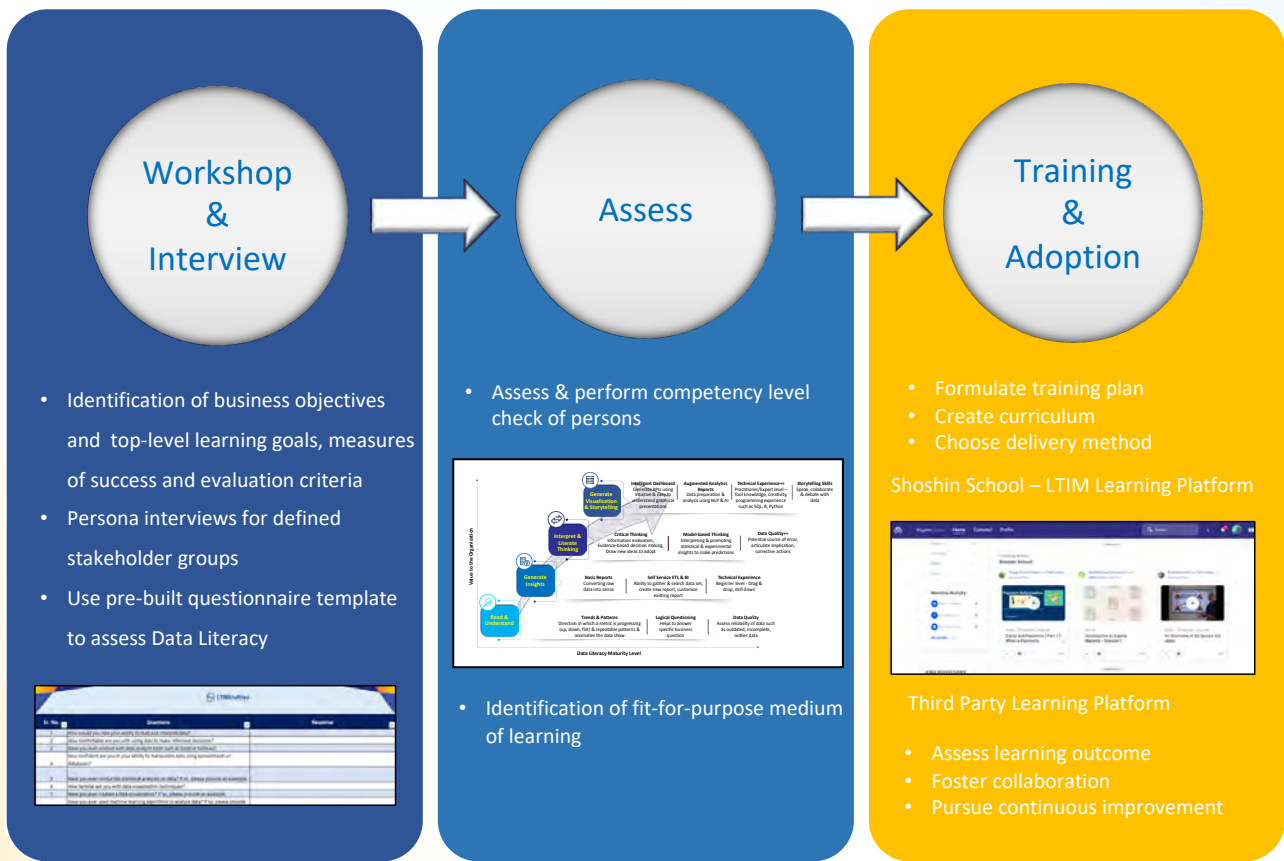


Diagram 5: Data literacy framework

To ensure that the training programs are effective, it is essential to tailor them to the maturity level of the persona being trained. Conducting a maturity assessment of the persona will help gain insights into their knowledge, skills, and experience, and create training programs personalized to their needs.



High-level data literacy training programs for finance professionals are given below:

Business personas

Persona	Tools they need to know	Recommended training
<ul style="list-style-type: none"> CFO Senior Management Controller of Finance 	<ul style="list-style-type: none"> Self-service and cognitive Business Intelligence (BI)/analytics 	<ul style="list-style-type: none"> Power BI fundamentals and self-service ThoughtSpot
<ul style="list-style-type: none"> Financial Analysts Treasury Analyst Tax Analyst Tax Operations Analysts Risk & Compliance Analyst Planning Analyst 	<ul style="list-style-type: none"> SQL BI tools Self-service ETL Self-service and cognitive BI/ analytics Python or R 	<ul style="list-style-type: none"> Data-driven decision-making in SQL Alteryx self-service analytics platform ThoughtSpot Power BI fundamentals Machine Learning Scientist with R or Python
<ul style="list-style-type: none"> Auditor Internal Auditor 	<ul style="list-style-type: none"> SQL BI tools Audit analytical tool 	<ul style="list-style-type: none"> Understanding data topics Data-driven decision-making in SQL Tableau fundamentals IDEA analytics
<ul style="list-style-type: none"> Cash Manager Risk Manager Planning Manager 	<ul style="list-style-type: none"> SQL BI tools Self-service and cognitive BI/ analytics 	<ul style="list-style-type: none"> Data-driven decision-making in SQL Power BI fundamentals and self-service ThoughtSpot

IT personas and their responsibilities

Persona	Tools they need to know	Recommended training
<ul style="list-style-type: none"> Reporting Analyst/Data Analyst 	<ul style="list-style-type: none"> SQL BI tools 	<ul style="list-style-type: none"> SQL fundamentals Tableau fundamentals Power BI fundamentals
<ul style="list-style-type: none"> Data Engineers 	<ul style="list-style-type: none"> Command line tools Cloud-based tools/ ETL 	<ul style="list-style-type: none"> SQL fundamentals Data processing in Shell Data engineering with AWS Glue Data engineering with ADF Data engineering with Snowpipe Data engineering with Databricks



Persona	Tools they need to know	Recommended training
<ul style="list-style-type: none"> Data Scientist 	<ul style="list-style-type: none"> SQL BI tools 	<ul style="list-style-type: none"> SQL fundamentals Data processing in Shell Machine Learning Scientist with R or Python Databricks fundamentals Azure MLOps fundamentals AWS Sagemaker fundamentals
<ul style="list-style-type: none"> Data Privacy and Security Analysts 	<ul style="list-style-type: none"> SQL BI Tools Python or R Data Privacy Management Tools Data Security Tools 	<ul style="list-style-type: none"> Data-driven decision-making in SQL Tableau fundamentals Power BI Fundamentals Basics of R or Python OneTrust fundamentals TrustArc fundamentals Data encryption Data protection laws



Building foundation for data literacy – Finance Data Hub

While data literacy is more about enabling a mind shift, organizations must prioritize technology capabilities to achieve literacy success. The technology will enable people to access the data from a common physical or virtual location for meaningful discussions and decisions. Hence, the focus should be to build a Finance Data Hub that removes data silos and provides a well-integrated holistic view of financial data, making it accessible to all personas within the organization for their analysis. Below are the capability levers one should consider to build Finance Data Hub.

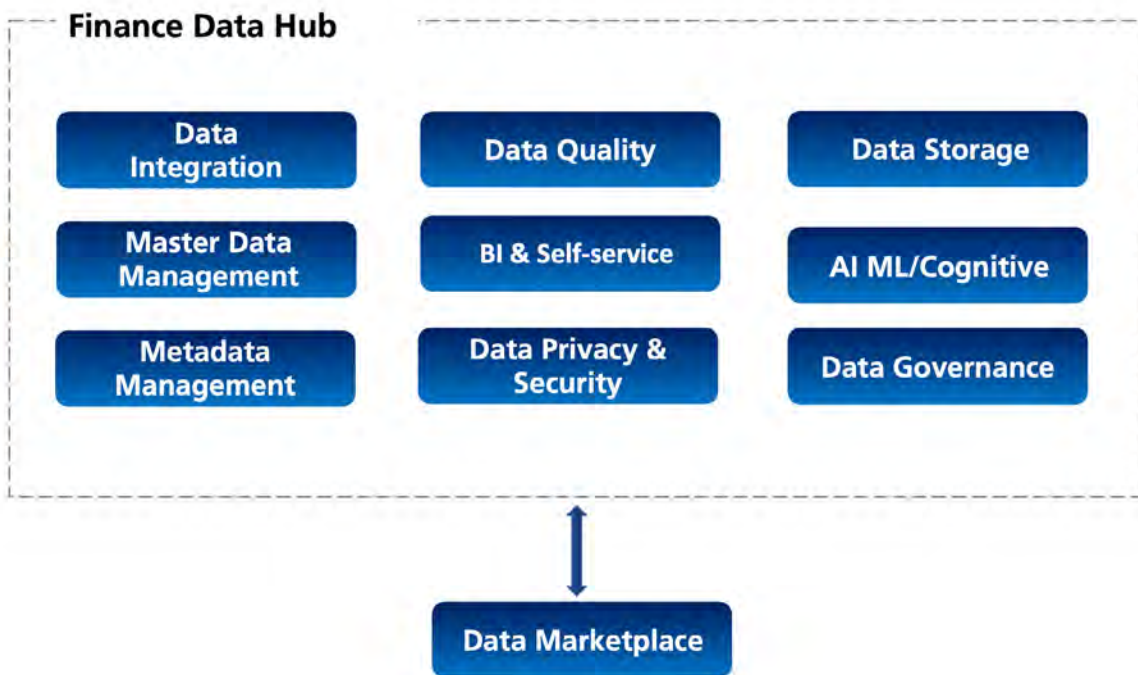


Diagram 6: Technical capabilities for building a Finance Data Hub

- The accumulation of vast amounts of data from legacy systems and merger/acquisition activities can create a fragmented approach to conducting business. To ensure the accuracy and reliability of this data for analysis and informed decision-making, it is necessary to implement various capabilities such as data integration, data quality assurance, and data storage solutions like a data lake, Enterprise Data Warehouse (EDW), data marts, and metadata management. For example, a shared data hub can facilitate



the reconciliation by procurement and checking if the order is booked by the financial analyst. Also, it can reduce the planning cycle, which usually takes 2-3 months to a few hours.

- Master Data Management (MDM) aims to establish a single version of truth within an enterprise ensuring standard definition, privacy, and security measures are put in place to protect sensitive information while governance practice overseas data management and control processes. Together these initiatives enhance data trust, safety, and accessibility within the organization.
- The consolidated data within the financial data hub is utilized for internal analysis, management reporting, planning, and external reporting (compliance and regulation). BI and advanced analytics tools are used to prepare data for such consumption.
- Data marketplace allows business users and decision-makers to discover and explore data through self-service capabilities easily. This requires a platform to be set up where data can be exchanged between producers and consumers of data using well-defined metadata.
- Though the mentioned above are technology capabilities, business involvement is critical for a financial transformation program. Data management activities such as data quality, master data management, metadata management, data governance and security should be collaboratively owned by personas from both business and IT.

Now the question is, who should own a data literacy program in an organization? The main objective of CDO is to ensure that data is considered a valuable asset throughout the organization and to encourage a shift in mindset towards utilizing data in daily activities. Hence, tracking the success of the data literacy program and taking necessary actions to address the data and analytics capability gaps is owned by the CDO along with appointed data champions.

Often establishing a successful data literacy program can be challenging for a CDO, with common difficulties including a lack of strategy to promote data culture, insufficient sponsorship, teams' resistance to learning new skills or working in a data way, and technical issues such as data quality and governance. As data literacy requires long-term commitment, a well-defined roadmap with clear guidelines and a coordinated effort from both business and IT sides is necessary.



How LTIMindtree can help

LTIMindtree is a market leader in data strategy and architecture capabilities. It brings a rich experience in setting up operating models for data-driven organizations and recommending role-based training plans after performing a detailed gap analysis.

LTIMindtree has specialized towers for data consulting and a center of excellence that work cohesively towards client goals. To learn more about LTIMindtree's data strategy and architecture capabilities or data management capabilities, please feel free to drop a note to ranjini.balakrishnan@ltimindtree.com and shibaji.mitra@ltimindtree.com.

Glossary

Abbreviation	Full Form
CFO	Chief Financial Officer
CDO	Chief Data Officer
COE	Center of Excellence
CoA	Chart of Account
CRM	Customer Relationship Management
ERP	Enterprise Resource Planning
D&A	Data & Analytics
EDW	Enterprise Data Warehouse
BI	Business Intelligence
AI	Artificial Intelligence
IT	Information Technology



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About Authors



Shibaji Mitra

Data Strategist, Data Architecture and Strategy
LTIMindtree

Shibaji Mitra is a Data Architect in the Data Architecture and Strategy team. He has around 19 years of experience in DW BI and worked on technology consulting and end-to-end implementation of data warehousing and modernization projects across multiple industries. He has successfully liaised with customers, functional and IT teams to understand customer needs and recommend appropriate solutions.



Ranjini Balakrishnan

Data Strategist, Data Architecture and Strategy
LTIMindtree

Ranjini Balakrishnan works as a Data Strategist in Data Architecture and Strategy team. She has over 14 years of experience in data analytics strategy, data management consulting, end-to-end implementation, and defining data literacy programs. She has assisted CXOs across various industries in establishing a vision, devising technical solutions, and charting a strategic road map for their data to decision journey.





LTIMindtree is a global technology consulting and digital solutions company that enables enterprises across industries to reimagine business models, accelerate innovation, and maximize growth by harnessing digital technologies. As a digital transformation partner to more than 700 clients, LTIMindtree brings extensive domain and technology expertise to help drive superior competitive differentiation, customer experiences, and business outcomes in a converging world. Powered by 84,000+ talented and entrepreneurial professionals across more than 30 countries, LTIMindtree — a Larsen & Toubro Group company — combines the industry-acclaimed strengths of erstwhile Larsen and Toubro Infotech and Mindtree in solving the most complex business challenges and delivering transformation at scale. For more information, please visit www.ltimindtree.com.