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Data Warehouse and Data Vault Adoption Trends

Modeling, Modernization, and Automation

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Management Summary

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Executive Summary

Industry hype and buzzwords notwithstanding, the data warehouse retains a commanding position in today's analytics environment. Most companies still entrust their mission-critical analytical data to a data warehouse, often cloud-based, although most data warehouse users also have alternatives such as the data lake and lakehouse. While most continue to struggle with data quality issues and cumbersome manual processes, best-in-class companies are making improvements with commercial automation tools.

The data vault has strong adherents among best-in-class companies, even though its usage lags the alternative approaches of third-normal-form and star schema. Compared with laggards, a higher portion of best-in-class companies adopt the data vault, embrace its standards, and intend to expand their use of it. They plan to expand their use of this modeling technique and methodology.

Eckerson Group wrote this report in collaboration with BARC by studying the results of a global survey of 238 data & analytics practitioners and leaders. BARC conducted the survey in December 2022 and January 2023, drawing respondents from companies of various sizes and across various industries. Lessons about data modeling, modernization, and automation include the following:

- **Focus on fundamentals.** *Companies place the highest priority on data quality, ease of use, analytics performance, and data governance.*
- **Automate with commercial tools.** *Implement commercial automation tools rather than homegrown scripts because they help improve data quality and standardize and reuse tasks.*
- **Get smarter about the data vault.** *Study how best-in-class adopters selected the data vault, trained their teams on the 2.0 solution, and plan to expand its footprint.*

Overall Takeaways

82%

of companies have multiple architectural types

Architecture. Analytics environments include the data warehouse (79%), data lake (42%), and independent data marts (41%). The lakehouse, data fabric, and data mesh have 8-12% usage each. Most respondents (58%) also still analyze some operational data directly. Most companies (82%), especially larger companies, have multiple architectural types.

58% plan to "improve data quality"

55% plan to "automate manual steps"

44% plan to "update business logic"

Priorities. Companies plan to "improve data quality" (58%), "automate manual steps" (55%), and "update business logic" (44%). They also intend to "improve performance and availability," "migrate to the cloud," and "extend architecture" (41% each).

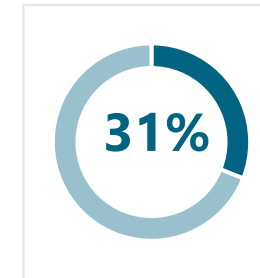
69% automate most or all data integration

58% automate most or all platform monitoring

Automation. Respondents say they automate most or all processes for "data integration" (69%), "platform monitoring" (58%), and "data quality monitoring" (38%).

Data Vault Takeaways

Standards. About one third (31%) of adopters say their “overall implementation” “fully” aligns with solution standards (for architecture, methodology, and modeling), and 60% say it “partially” aligns. A lack of training contributes to this gap: only 65% of data vault adopters say they have been trained on the data vault 2.0 solution.

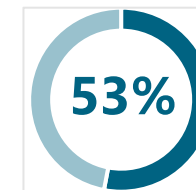


... of adopters say their implementation fully aligns with solution standards.

Business drivers. Respondents cite “accelerated data delivery” (45%), “team skills/preference” (41%), and “advice of consultant” (40%) as their primary business reasons for adopting the data vault.

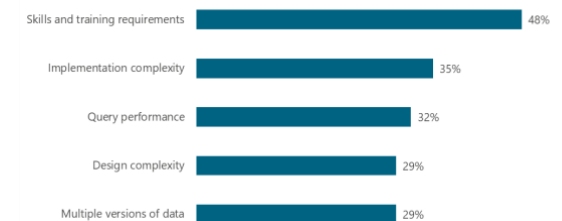


Technical drivers. Respondents cite “extensibility” (53%), “scalability (data volume and velocity)” (40%), “flexible architecture” (35%), “simpler data management” (33%), “unified data model” (32%), and “data quality” (27%) as their primary technical reasons for adopting the data vault.

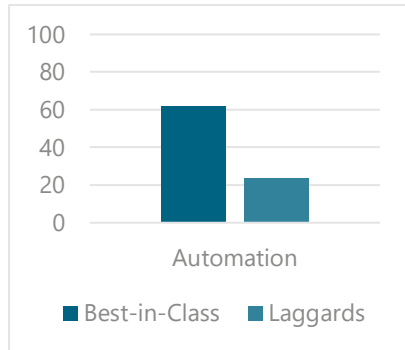


... of adopters cite “extensibility” as their primary technical reason for adopting the data vault.

Drawbacks. Half of data vault adopters (48%) cite “skills and training requirements” as a primary drawback, followed by “implementation complexity” (35%) and “query performance” (32%). Other responses include “design complexity” (29%) and “multiple versions of data” (29%).

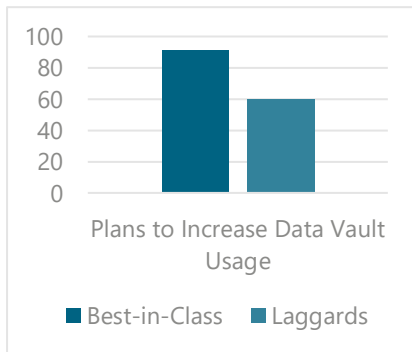


Best-in-Class Companies vs. Laggards



Automation tools. Nearly two thirds of best-in-class companies (62%) say their automation is “fully” or “mostly” based on commercial tools rather than homegrown scripts. This compares with 24% usage for laggards.

Future plans. A higher portion of laggards plan to improve in the areas of automation, data quality, performance, and availability when compared with best-in-class companies. They view data quality as one of their “biggest challenges.”



Data vault. Best-in-class companies adopt the data vault and take data vault 2.0 solution training in much higher numbers than the laggards. More of them (91%) also plan to increase the role of the data vault in their environments when compared with laggards (60%).

Recommendations

Consider these recommendations to derive more business value from your analytics environment:

- **Focus on fundamentals.** Companies place the highest priority on ease of use, analytics performance, and data governance. Let these priorities guide your decisions about how to create analytics value amidst economic uncertainty.
- **Double down on data quality.** Inaccurate, duplicative, and delayed data still plagues most analytics environments. Reduce your silos and implement commercial tools to monitor data quality. Even data laggards now take this seriously.
- **Automate with commercial tools.** Best-in-class companies use commercial automation tools that help them standardize, streamline, and repeat data management tasks. Follow their lead and evaluate tools to integrate data, optimize platforms, and improve data quality.
- **Assess the costs and benefits of the data vault.** Many data practitioners and leaders say they don't know enough about the data vault technique and methodology. They should learn why the data vault is expanding within environments that adopted it.
- **Learn from the data vault leaders.** The data vault has committed users that value its ability to speed data delivery and grow with the business. Study how best-in-class adopters selected the data vault, trained their teams on the 2.0 solution, and automated its processes with commercial tools.

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