

A Blueprint for EDM Transformation: Enabling Faster Claims and Lower Risk in Insurance

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Abstract: *The Electronic Death Match (EDM) process plays a critical role in the life insurance sector by verifying policyholder mortality and triggering timely claims. Legacy EDM systems often lack scalability, auditability, and efficiency—posing risks to compliance, customer trust, and economic stability. This paper outlines a cloud - native EDM modernization framework using Microsoft Azure. The approach introduces scalable architecture, serverless automation, integrated compliance, and real - time performance monitoring. The paper covers system design, implementation strategy, expected efficiencies, and potential industry - wide implications for operational reform and socioeconomic impact.*

Keywords: life insurance, policyholder, automation, reform

1. Introduction

Insurance carriers depend on the accuracy and efficiency of the EDM process to ensure regulatory compliance and customer trust. EDM systems compare internal policyholder data with national death records, enabling appropriate policy closure and benefit disbursement [1].

As the insurance industry becomes more data - intensive, legacy EDM systems increasingly present challenges such as latency, integration complexity, and non - compliance risk. These limitations create potential exposure to regulatory fines, reputational damage, and financial inefficiencies [2]. To address these issues, insurers may pursue cloud - based modernization that positions EDM as a resilient, scalable, and auditable service—integrated with broader digital transformation agendas [3].

2. Challenges in Legacy EDM system

Traditional EDM systems—often built on aging ETL tools and monolithic databases—struggle to meet the demands of modern insurance operations [4]. Key inefficiencies include:

- **Limited Scalability:** Batch processing architectures may falter under growing volumes of data from government and third - party sources.
- **High Operational Overhead:** Licensing, infrastructure maintenance, and manual reconciliation tasks inflate costs [5].
- **Integration Silos:** Difficulty connecting with claims, billing, and compliance systems impedes data flow and real - time decision - making.
- **Downtime and Errors:** Legacy systems may experience frequent failures and inaccuracies, impacting claims timelines and customer satisfaction [6].

These challenges underscore the need for a modular, intelligent, and cloud - native EDM platform.

3. Modernization Framework on Cloud Infrastructure

A future - ready EDM system may be designed using Microsoft Azure's native services, allowing for elasticity, automation, and governance [7]. Core design principles include:

a) *Modular and Serverless Architecture*

- **Azure Functions** facilitate event - driven compute that scales with incoming data volumes.
- **Azure Data Factory** manages ingestion pipelines from external sources like the Social Security Death Master File.
- **Azure SQL and Cosmos DB** provide distributed, high - performance storage for structured and semi - structured data [8].

b) *Compliance - Centric Workflows*

- Embedded risk and audit controls ensure EDM processes comply with state and federal regulations.
- Automated logging, data lineage, and version control enable regulatory transparency [9].

c) *Real - Time Analytics and Monitoring*

- **Azure Monitor and Application Insights** allow real - time observability of claim verification performance, queue latency, and SLA adherence [10].
- Dashboards track KPIs such as processing time, error rates, and policy match success.

d) *Cross - Team Enablement*

The platform encourages agile collaboration among IT, claims, compliance, and data teams—reducing project risk and enabling faster innovation cycles.

4. Projected Benefits and Business Impact

Organizations that adopt this modernization approach may realize the following improvements:

a) Faster Claim Processing

Cloud automation and real - time ingestion reduce claim verification times by up to 50%, enabling quicker benefit disbursement and improved customer experience [11].

b) High Availability and Resilience

Using geo - redundant services and load balancing, system uptime can exceed 99.95%, ensuring continuous operation during peak periods.

c) Lower Operational Costs

Serverless and PaaS architectures reduce infrastructure and licensing costs by 25–30%, freeing capital for innovation and strategic investments [12].

d) Strengthened Compliance Readiness

Audit - friendly architecture supports evolving regulatory demands through traceability, logging, and API - based data exchange [13].

e) Scalability for Enterprise - Wide Adoption

The EDM modernization model may serve as a reference for transforming adjacent systems such as customer master data, identity management, or claims adjudication.

5. Industry - Wide and Economic Implications**a) Blueprint for Insurance Digital Reform**

With the U. S. insurance industry losing an estimated \$36 billion annually to inefficiencies, the EDM modernization blueprint offers a pathway to reclaim operational value and modernize core functions [14].

b) Accelerated Claim Payouts Boost Consumer Liquidity

In a market where life insurance payouts exceed \$90 billion annually, faster benefit issuance enhances household liquidity—positively influencing debt servicing, healthcare decisions, and local economic activity [15].

c) Supports ESG Goals in Insurance

Modern EDM practices align with the social pillar of ESG, ensuring vulnerable populations receive timely benefits during critical life events. This reinforces ethical insurance practices and brand integrity [16].

6. Conclusion

The modernization of the EDM process through cloud - native design has the potential to elevate insurance operations to a new standard of agility, transparency, and customer centricity.

By embracing scalable infrastructure, automating compliance controls, and enhancing system resilience, insurers may address long - standing legacy constraints and align with the digital future of financial services.

Such transformation not only enhances internal operational efficiency but also generates positive ripple effects across the broader economy and society. As the insurance sector navigates the next era of regulatory scrutiny and customer expectation, EDM modernization becomes a critical enabler of trust, continuity, and growth.

References

- [1] R. B. N. Conway, M. G. Armistead, M. J. Denney, and G. S. Smith, 'Validating the Matching of Patients in the Linkage of a Large Hospital System's Ehr with State and National Death Databases', *Applied Clinical Informatics*, vol.12, pp.82–89, Feb.2021, doi: 10.1055/s - 0040 - 1722220.
- [2] A. D. Shah, C. Martinez, and H. Hemingway, 'The Freetext Matching Algorithm: A Computer Program to Extract Diagnoses and Causes of Death from Unstructured Text in Electronic Health Records', *BMC Med Inform Decis Mak*, vol.12, no.1, p.88, Aug.2012, doi: 10.1186/1472 - 6947 - 12 - 88.
- [3] S. Varatharajan and A. Subramanian, 'Reimagining Insurance: A Strategic Shift from Mainframe Systems to Cloud - Based Operations', *IJSR*, vol.14, no.3, pp.696–699, Mar.2025, doi: 10.21275/SR25313004418.
- [4] S. L. Dawdy and T. Kneese, *The New Death: Mortality and Death Care in the Twenty - First Century*. Mexico: University of New Mexico Press, 2022.
- [5] C. Pillay and J. Njenga, 'Opportunities for Reducing Expenses through Digital Innovation: The Case of an Insurance Company', *The African Journal of Information Systems*, vol.13, no.1, p.5, Apr.2021.
- [6] S. Ponnusamy and D. Eswararaj, 'Navigating the Modernization of Legacy Applications and Data: Effective Strategies and Best Practices', *AJRCOS*, vol.16, no.4, pp.239–256, Nov.2023, doi: 10.9734/ajrcos/2023/v16i4386.
- [7] H. Nawaz, M. S. Sethi, S. S. Nazir, and U. Jamil, 'Enhancing National Cybersecurity and Operational Efficiency through Legacy IT Modernization and Cloud Migration: A US Perspective', *Journal of Computing & Biomedical Informatics*, vol.7, no.02, Art. no.02, Sep.2024, Accessed: May 31, 2025. [Online]. Available: <https://www.jcibi.org/index.php/Main/article/view/536>
- [8] J. R. Guay Paz, 'Introduction to Azure Cosmos DB', in *Microsoft Azure Cosmos DB Revealed: A Multi - Model Database Designed for the Cloud*, J. R. Guay Paz, Ed., Berkeley, CA: Apress, 2018, pp.1–23. doi: 10.1007/978 - 1 - 4842 - 3351 - 1_1.
- [9] Y. Gawankar and S. Naik, 'Anticipating the Evolution of Data Accountability through Technological Advancements and Regulatory Landscape Changes', in *Cloud Security*, J. S. Murthy, G. M. Siddesh, and K. G. Srinivasa, Eds., Chapman and Hall/CRC, 2024.
- [10] A. Satapathi and A. Mishra, 'Enabling Application Insights and Azure Monitor', in *Hands - on Azure Functions with C#: Build Function as a Service (FaaS) Solutions*, A. Satapathi and A. Mishra, Eds., Berkeley, CA: Apress, 2021, pp.233–261. doi: 10.1007/978 - 1 - 4842 - 7122 - 3_10.
- [11] Researcher, 'Ai and Cloud for Claims Processing Automation in Property and Casualty Insurance', *International Journal of Engineering and Technology Research (IJETR)*, vol.8, no.1, pp.38–46, Aug.2023, doi: 10.5281/ZENODO.14498802.
- [12] E. van Eyk, L. Toader, S. Talluri, L. Versluis, A. Uță, and A. Iosup, 'Serverless is More: From PaaS to Present Cloud Computing', *IEEE Internet Computing*, vol.22,

no.5, pp.8–17, Sep.2018, doi:
10.1109/MIC.2018.053681358.

- [13] B. Suzic, 'User - centered security management of API - based data integration workflows', in *NOMS 2016 - 2016 IEEE/IFIP Network Operations and Management Symposium*, Istanbul, Turkey: IEEE, Apr.2016, pp.1233–1238. doi: 10.1109/NOMS.2016.7502993.
- [14] W. H. Greene and D. Segal, 'Profitability and Efficiency in the U. S. Life Insurance Industry', *Journal of Productivity Analysis*, vol.21, no.3, pp.229–247, May 2004, doi: 10.1023/B: PROD.0000022092.70204.f.
- [15] C. Jotikasthira, A. Kartasheva, C. T. Lundblad, and T. Ramadorai, 'Strategic Claim Payment Delays? Evidence from Property and Casualty Insurance', Jan.27, 2025, *Social Science Research Network, Rochester, NY*: 5115108. doi: 10.2139/ssrn.5115108.
- [16] M. Eling, 'Is the Insurance Industry Sustainable?', *The Journal of Risk Finance*, vol.25, no.4, pp.684–703, Jun.2024, doi: 10.1108/JRF - 12 - 2023 - 0314.

