AI POWERED BI MIGRATION

Checklist
Data Migration

The 7 most important steps for fast and
secure BI data migration

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Foreword

Migrating BI platforms is more than just a technical update. It determines whether your company operates in a data-driven, efficient and future-proof manner.

Those who approach the switch from a legacy system to a modern BI system unprepared or unstructured risk data loss, business interruptions, inaccurate reports, compliance violations or high costs due to delays.

With a clear strategy and the right approach, these risks can be minimized and the advantages of modern BI platforms such as Databricks or analytics tools such as Power BI/Tableau can be exploited more quickly.

This checklist will help you plan each phase of a BI migration in a structured manner and implement it successfully.

The focus here is on the targeted use of AI during migration, which can significantly speed up the process, ensure data quality and drastically reduce manual effort.

Find out more here!

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Success Factors

Migrating a BI system involves more than just moving data – it determines whether companies can operate efficiently, in a data-driven manner and with future-proof capabilities.

A successful migration process requires detailed planning, comprehensive validation and continuous testing to prevent data loss, corruption or security risks.

A strategic approach that takes both technical and business aspects into account is essential.

Key success factors for BI migration:

1. Clear goals & strategic planning

- The migration must be aligned with the overall corporate objectives.
- Careful planning helps to minimise risks and maximise added value.

2. Ensuring data quality and compatibility

- Audits, data cleansing and mapping ensure accuracy and smooth integration.
- Early data validation prevents errors and incompatibilities.

3. Pilot tests & validation prior to conversion

- Early test migrations and automated reconciliation processes reduce errors. Iterative validation ensures that the new BI system works reliably right from the start.

4. Stakeholder Management & communication

- Regular updates and the involvement of specialist departments facilitate acceptance.
- Change management helps to reduce resistance.

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5. **Performance measurement & optimisation**

- Metrics such as usage, performance and financial impact measure the success of the migration.
- Long-term optimization strategies ensure the sustainable benefits of the BI platform.

6. **Use of AI to increase efficiency**

- AI automatically handles code conversion, data cleansing and validation.
- Minimal operational disruptions, reduced data loss and seamless integration into the IT landscape.

Data quality and compatibility are the basis for a successful migration. If these aspects are taken into account at an early stage, errors can be avoided and smooth integration into the target system can be ensured.

Common challenges

Data migration is a key component of BI modernization and efficiency improvement, but it comes with numerous challenges. If these are not addressed in a timely manner, it can lead to delays, rising costs or compromised data integrity.

Data quality issues

Poor data quality – e.g. due to duplicates, missing values or outdated entries – complicates migration and can lead to errors in the target system. Early cleansing is therefore essential.

Lack of strategy

Without defined goals and a structured plan, migration can become uncontrolled. This often leads to project delays, rising costs and non-compliance with business requirements.

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System compatibility

Differences between source and target systems, such as differing data formats, schemas or interfaces, can pose significant technical hurdles. AI-supported transformations help to minimize these challenges.

Downtime and operational interruptions

Processing large amounts of data can put strain on existing systems and lead to performance problems or interruptions in business operations. A phased migration or a hybrid approach can help here.

Security and compliance risks

Data migrations are often subject to strict regulations. Inadequate security measures can lead to data protection violations or financial penalties. Continuous monitoring during migration is therefore crucial.

Underestimated resource requirements

A lack of skilled personnel, inadequate tools or an overly tight budget often led to delays and quality issues. The targeted use of AI significantly reduces the number of resources required.

Validation issues after migration

Without automated validation processes, ensuring correct and complete data transfer is a costly undertaking. AI-supported tests can reduce errors by over 90% and ensure data consistency.

Overcoming these challenges requires detailed planning, thorough testing, close cooperation with all parties involved, and the targeted use of AI for faster, more cost-efficient, and risk-minimized implementation.

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Checklist

1 **Define objectives, scope and success criteria**

Setting clear goals ensures alignment between migration goals and overall business objectives. Precise project boundaries prevent uncontrolled expansion of scope (scope creep) and inefficient use of resources.

Identify data sets to be migrated, including critical business data, archival data, and redundant entries.

Define success criteria, e.g. error-free data transfer rates, system performance indicators or compliance with compliance requirements.

Involve stakeholders at an early stage to gather requirements, coordinate objectives and obtain approvals.

KPI: Completion of stakeholder consultation and documentation of 3–5 measurable objectives.

Clear objectives ensure that everyone involved has a common understanding of the migration project.

A precise definition of the scope reduces delays, optimizes resource utilization and maximizes the business value of the migration.

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2 Evaluate and prepare data

Data quality and compatibility are the foundation for a successful migration. Identifying and resolving potential issues early on reduces errors and prevents costly delays during implementation.

Check all data to identify incomplete, duplicate or outdated entries.

Classify records by type, priority, and access requirements.

Map the structure of source and target systems, including differences in schemas, formats or field definitions.

Standardize and cleanse data to ensure consistency and accuracy across all systems.

KPI: 95% of data cleaned and mapped before migration begins.

Thorough data preparation ensures that the data is accurate, consistent and ready for migration.
This step prevents interruptions, supports a smooth system changeover and ensures optimal performance in the target system.

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3 Develop a data migration plan

A comprehensive migration plan defines the roadmap for implementation and ensures that each step is coordinated, and stakeholders are kept informed.

Selection of a suitable migration strategy, e.g. big bang, gradual migration or parallel operation (depending on the complexity of the project and the requirements).

Create a schedule with clear milestones, deadlines and contingency plans for potential risks.

KPI: Approval of a migration roadmap with deadlines, milestones and risk management plans.

Define roles and responsibilities within the team.

A well-structured migration plan minimizes risks and ensures that the project stays on track. Clear timelines and responsibilities enable efficient implementation.

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4 Securing systems and data

Security and compliance throughout the migration are essential to protect business operations and secure sensitive information.

Encrypt data during transmission and storage to prevent unauthorised access.

Identify and fix vulnerabilities in source and target systems to minimise security risks.

Ensure compliance with industry-specific regulations, e.g. GDPR, to avoid legal or financial consequences.

Implement access controls so that only authorised persons can manage data.

KPI: Compliance templates established and no security incidents during migration.

Securing data during migration protects against security breaches and ensures compliance with legal requirements.

Prioritising security early on builds trust and protects your company from legal or financial risks.

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5 Conduct pilot tests

Testing with a subset of the data minimizes the risk of widespread errors and ensures that the migration process meets both technical and business requirements.

Select a representative sample of data that reflects the diversity and complexity of the entire data set.

Test migration tools and workflows in a controlled environment to identify errors early on.

Validate data integrity, completeness, and accessibility in the target system during testing to ensure that all data has been transferred correctly.

Document errors or inefficiencies and optimize the process before the full migration begins.

KPI: Completion of the pilot phase with 95% of identified issues resolved before the full migration is carried out.

Pilot tests validate and optimize the migration approach, reduce errors during the main migration and strengthen confidence in the process. This enables efficient, secure and smooth data migration.

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6   Migrate data

Implementing the migration according to the established plan ensures a smooth transition with minimal disruption to business operations.

Monitor every stage of the ETL process (extract, transform, load) to ensure data integrity and consistency.

Clear communication with stakeholders to provide status updates and address concerns.

Track and resolve technical issues in real time to avoid bottlenecks or delays.

KPI: Achieve 99% data accuracy (no losses, no duplicates, complete fields) with less than 1% downtime.

Careful migration ensures that data is transferred correctly without interruptions.

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7 Validate and optimize

Validation after migration is the final step in ensuring data integrity, system functionality and compliance with defined key performance indicators.

Verification that all data has been migrated completely and without errors, losses or damage.

Testing system functionality, including workflows, integrations, and processes, to ensure that everything is working as intended.

Carry out performance benchmarks to compare efficiency before and after migration.

Perform user acceptance testing (UAT) to validate usability and incorporate feedback from stakeholders.

Ensuring compliance with relevant data protection regulations.

KPI: 100% of business-critical workflows must be operational after migration, with user satisfaction above 90%.

Validating the migration ensures that the data is functional and correct, thereby laying the foundation for long-term success.

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How AI makes BI migration more efficient

The migration of BI systems is a complex and critical process that involves not only transferring applications, but also large amounts of company data securely and efficiently to new systems.

Traditional data migrations are often time-consuming, error-prone and resource-intensive – especially when performed manually.

> The targeted use of artificial intelligence (AI) is fundamentally changing the migration process. It makes it faster, more precise, more scalable and significantly more secure.

1. How AI optimizes data evaluation and preparation

AI-supported technologies enable faster, more accurate and more efficient data evaluation and cleansing. While traditional methods are often time-consuming and prone to errors, AI can automate, optimize and accelerate the entire process:

Automated data analysis and audits

AI automatically detects erroneous data: incomplete, duplicate or outdated entries are identified and categorized.

Machine learning models recognize patterns and inconsistencies that are often overlooked in manual audits.

Automatic suggestions for cleansing and anomalies: AI can suggest corrections or implement them directly.

Intelligent data classification

AI-based algorithms analyze and classify data according to relevance, sensitivity and frequency of use.

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Automatic prioritization: Critical business data is highlighted, while redundant or archivable data is identified.

Faster decision-making: AI shows which data must be migrated and which can be optimized or outsourced.

Automated data standardization and mapping

AI automatically compares source and target systems, detects schema differences and suggests adjustments.

Automatic data format conversion: Different structures, formats or field definitions are harmonized by AI.

Reduction of manual mapping errors, as AI recognizes and adjusts cross-database relationships.

AI-supported data cleansing

Automatic data enrichment: AI can supplement missing values by referencing other sources and ensure consistency across all systems to avoid errors in the target system.

AI-supported quality control and validation

AI-based quality checks and automated validation loops prior to migration prevent transfer errors.

Anomalies and errors are detected and corrected in real time before they reach the target system.

AI-generated reports provide detailed insights into data quality and enable fact-based decision-making.

2. How AI optimizes the development of the data migration plan

AI can automate, optimize, and secure the entire data migration planning process by analyzing complex dependencies, minimizing risks, and making more accurate predictions:

Automatic selection of the optimal migration strategy

AI analyzes the complexity of the data migration and automatically recommends the best strategy (big bang, step-by-step migration, or parallel operation).

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Real-time risk assessment: AI identifies potential problem areas in the system architecture and suggests proactive solutions.

Simulation models enable data-driven decisions to identify bottlenecks at an early stage.

Automated risk analysis and contingency strategies

AI-based algorithms scan the entire system for potential migration vulnerabilities.

Real-time monitoring identifies critical error points before they cause delays or data loss.

3. How AI optimizes security and compliance during migration

AI can automate, secure, and optimize the entire security process during a BI migration by detecting threats, controlling access, and ensuring compliance requirements are met.

Fixing security vulnerabilities

AI-powered security analytics scan source and target systems for vulnerabilities in real time.

Automatic patch recommendations and configuration changes to immediately close security gaps.

Automated compliance checks and audit logs

Real-time monitoring of security policies ensures that every change complies with regulations.

Automatic audit logs track every data movement to ensure complete transparency and traceability. zu gewährleisten.

4. How AI optimizes Pilot-Tests

AI can accelerate, automate, and make the entire testing process more accurate by detecting migration errors early on, suggesting optimizations, and performing real-time validations.

Automatic selection of representative test data

AI analyzes the entire data set and selects a statistically relevant, representative test set.

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The selection includes all data variants, formats, and business rules to ensure realistic test scenarios.

Dynamic adaptation of test data depending on complexity and target platform to cover all possible edge cases.

Simulation & automated test execution

AI simulates the entire migration process with the test data in a secure environment.

Real-time comparison of source and target systems to detect inconsistent data structures or incorrect mappings.

Automatic performance analyses to identify bottlenecks or inefficient workflows at an early stage.

Real-time validation & error detection

AI automatically checks data integrity, completeness, and accessibility in the target system.

Error logs and root cause analysis in real time to identify inconsistencies.

An integrated feedback loop optimizes test methods, identifies sources of error, and proactively suggests solutions.

Automatic process optimization before the main migration

AI generates detailed reports on inefficient processes, error rates, and optimization potential.

Automatic correction suggestions and test repetitions until the error rate is reduced to an acceptable level.

Systematic refinement of the migration strategy to ensure that the main migration runs smoothly.

5. How AI optimizes data migration

The use of AI during data migration ensures a more efficient, precise, and risk-free implementation.

AI automates many manual processes, reduces errors, and minimizes interruptions to business operations.

Intelligent error detection & self-correction

AI can automatically identify and correct data loss, duplicates, or formatting issues to ensure data quality.

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Automated stakeholder communication

AI can generate automatic status updates, dashboards, and alerts to proactively inform teams about progress and enable quick decisions.

Minimization of downtime

Through intelligent scheduling algorithms, AI can ensure that migrations are performed during off-peak times, keeping downtime below 1%.

How we can help you with this

BI migrations are usually complex and risky – but with targeted AI support, they can be more efficient, secure, and cost-effective.

Our AI-powered migration solution handles time-consuming manual processes such as code conversion, data validation, and layout replication.

This reduces manual effort by up to 60% and shortens migration time by up to 50%.

At the same time, our automated quality assurance mechanisms reduce migration costs by 50–60% and ensure virtually error-free data transfer.

Our solution integrates seamlessly into existing BI architectures and supports modern BI platforms such as Databricks, or analytics tools such as Power BI / Tableau – whether in the cloud, on-premise, or as a hybrid solution.

With our end-to-end service, we guide companies through the entire migration process—from inventory and strategy development to automated migration, quality assurance, training, and ongoing support.

Take the step to NextGen BI now and contact us.
Our experts are always available as sparring partners.

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