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FROM 80% MAINTENANCE MODE TO LLM ANALYTICS: HOW GOLDNER FASHION MADE ITS DATA ARCHITECTURE AI-READY

From a data team stuck in manual maintenance mode 80% of the time, leaving no time for strategic initiatives, to 80% free capacity for value creation; from error-prone reports at lunchtime to reliably validated business figures before 6:00 a.m.; from a rigid legacy BI black box to future-oriented LLM analytics and AI use cases that deliver measurable savings in advertising and printing costs: GOLDNER Fashion Group achieved this fundamental transformation by switching to minubo's modular-hybrid data platform, which automates complex data basics while simultaneously giving the in-house team full control over its business logic. This case study details how this leap to an AI-ready data architecture was successfully accomplished.

GOLDNER

MADELEINE

TRADITION MEETS FUTURE

THE ROLE OF DATA AT GOLDNER

The GOLDNER Fashion Group, with its multichannel approach encompassing catalog, online, and outlet stores, has been working with data for decades. The reason isn't purely technical: mail order is traditionally data-driven, and data has long been a tool at GOLDNER for making better decisions in day-to-day operations.

But over time, the requirements changed. Not the direction, but the scale: data had to be reliable, traceable, and fast enough to truly accelerate planning and control in today's world. As a mature company, GOLDNER has accumulated data complexity, which, due to the interplay of numerous systems, sources, and business logics, demands significant maintenance. This is precisely where problems arose that couldn't be ignored in daily operations.

ABOUT GOLDNER FASHION GROUP

The GOLDNER Fashion Group is a renowned multichannel retailer specializing in high-quality, stylish women's fashion for the mature market, headquartered in Münchberg, Upper Franconia, and employing approximately 600 people. The GOLDNER Fashion Group includes the fashion brands GOLDNER and MADELEINE. In addition, the GOLDNER Fashion Group offers fulfillment services throughout Europe through its logistics brands SULKY and customer service. The company reaches customers in Germany and seven other European countries online and via catalog.

WHEN DATA IS THERE, BUT NOT „READILY AVAILABLE".

GOLDNER had data. What was missing was the assurance that it would always function as needed for sound decision-making in everyday practice. For CEO Marcus Anton, it wasn't just „data availability" that was crucial, but whether the data was of the right quality and available at the right time for planning and management decisions.

A LEGACY FOUNDATION THAT HINDERS MORE THAN IT SUPPORTS

Over the years, a historically grown data architecture developed, based primarily on a system from an external service provider. While this system was adapted to existing use cases, it offered no flexibility or transparency. This led to several consequences:

- **Blackbox dependency:** Key areas were dominated by an external service provider – with limited internal know-how and slow communication channels.
- **Rigid infrastructure:** The setup was difficult to expand, resulting in unnecessarily high operating costs..
- **Slow adjustments:** Every change to the data logic became increasingly difficult and costly over time, as each adjustment had to be made by the external service provider. For a data-driven company, this meant that every new question turned into a tedious project.
- **Shadow IT:** A lack of flexibility forced teams to set up their own parallel systems and databases alongside the official data warehouse to automate recurring analyses. This destabilized data governance and created uncontrollable data silos.

THE FINAL BOSS IN E-COMMERCE: ERP COMPLEXITY

Another challenge – not just at GOLDNER, but in almost all e-commerce companies – lies in the preparation of ERP data. Transactional data from the ERP system is the foundation for all further analyses. However, its preparation and modeling is extremely complex and requires considerable manual effort. At GOLDNER, this also led to classic symptoms: high error rates, lack of availability, and an enormous amount of time spent on manual analyses. This complexity was a key reason why the old infrastructure became a bottleneck.

"REPORTS NOT READY IN THE MORNING": SPEED BECAME AN OPERATIONAL RISK

In day-to-day operations, this was particularly evident in performance issues. If the data wasn't clean and available quickly enough, analyses were delayed:

- **Reports were often only available from midday onwards** – too late for quick, morning decisions.
- Teams were forced to work **with outdated or incomplete data.**
- Instead of being able to act on a daily basis, strategic decisions were often postponed.

LACK OF TRANSPARENCY: WHEN VOTING COSTS TRUST

Besides speed, the second issue was a lack of transparency. Figures from different departments didn't match up. Differing definitions and siloed perspectives led to uncertainty and a veritable paralysis of decision-making.

CEO Marcus Anton sums it up: *„You can either make a decision based on less-than-ideal information or make no decision at all. Sometimes, not making a decision is even worse than making a trial decision."*

But waiting for „perfect" data permanently cost GOLDNER speed and flexibility.

THE DATA TEAM IS IN MAINTENANCE MODE (80% FIREFIGHTING)

Because access to data logic was restricted by the black box, the internal data team spent **roughly 80% of its time on pure maintenance and troubleshooting**. Only 20% of resources remained for value-adding analyses that could actively drive the business or pave the way for new technologies like AI. The team's potential remained untapped. Not because of a lack of will, but because the data structure didn't provide the necessary foundation.



THE TURNING POINT

THE DECISION AGAINST THE "GREENFIELD REQUIREMENT"

GOLDNER faced a fundamental decision: continue „repairing" the existing setup or radically address the root causes?

The honest realization was that building a completely in-house data architecture from scratch would fail due to the realities of the job market. Marcus Anton describes this strategic moment very directly:

„We wanted to build a completely in-house architecture and were immediately put off, not least because of staffing issues. We saw how difficult it is to permanently staff a team of the necessary size for such a project. If you want a cloud setup, you don't need a full-time administrator – but try hiring someone for a 0.1 FTE position."

REQUIREMENTS FOR A MODERN DATA SETUP

As a large, long-established company, GOLDNER brings its own resources to the table. The team should actively participate – not just as users, but as designers. Specifically, this meant:

- **True data sovereignty:** The in-house data team should retain full control and sovereignty over the business logic.
- **Standardizing the basics:** Don't waste time reinventing the wheel (like data pipelines or standard connectors).
- **Future-proofing (AI readiness):** A scalable, semantically clean database as the foundation for future AI use cases.



MARCUS ANTON
CEO GOLDNER

THE SOLUTION

THE HYBRID BI APPROACH (STANDARD + CUSTOM)

GOLDNER didn't simply „implement" a tool, but rather built a data architecture that reorganizes collaboration within the company. The central idea was: The core should be stable and reliable – while simultaneously allowing enough room for individual logic.

This results in a **hybrid setup** where every change doesn't become a major undertaking. And where the data team gets the role it should play: creating value.

GOLDNER opted for the modular BI platform minubo. The central idea: The data core is standardized and stabilized, while the GOLDNER team retains complete freedom for custom logic that is crucial for competitive advantage.

Marcus Anton explains the goal: *„We wanted to move away from an 80/20 approach to a 20/80 one – so that the team could focus its energy on development. It was crucial for us to have a robust foundation on which we wouldn't have to start from scratch with every detail – and at the same time, to be able to implement our individual logic."*

STANDARD (MINUBO): THE RESILIENT BASIS

The standard part of minubo takes over the extremely complex foundation and ensures fast multichannel onboarding:

- **AUTOMATED ERP PROCESSING:** Transactional data from the ERP system is automatically, cleanly modeled, and stabilized. The traditional manual project effort is completely eliminated.
- **EXTRACTION OF ALL RELEVANT E-COMMERCE SOURCES:** Seamless integration of all relevant e-commerce sources (shop, ERP, marketing, marketplaces, etc.) without requiring a dedicated team.
- **800+ E-COMMERCE-KPIS:** minubo provides a data model including consistent logic, definitions and semantics – inherently "AI-ready" through metadata & guardrails.
- **MINUBO FRONTEND (OPTIONAL):** Intuitive, best-practice dashboards and reports are available out-of-the-box for rapid reporting, in-depth analysis, and daily action – with no setup time required. Every team member has self-service access to relevant data.
- **NO VENDOR-LOCK-IN:** Existing tools remain usable. Easy connection to SuperSet, Power BI, ChatGPT, Claude, n8n and more. Those with established reporting structures (like GOLDNER) don't have to abandon them.

INDIVIDUALITY (OPEN DWH): ROOM FOR COMPETITIVE ADVANTAGE

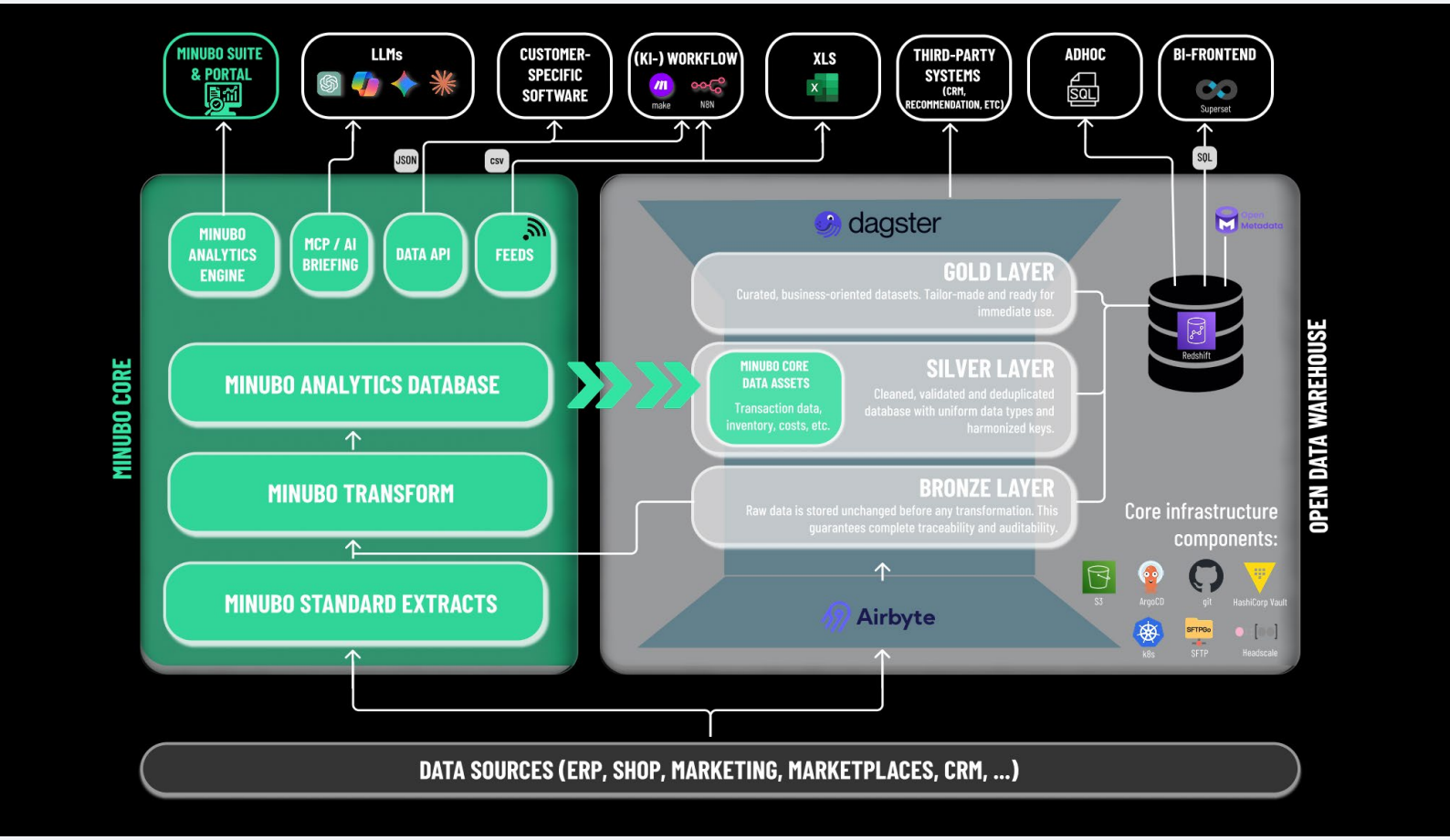
Everything that makes GOLDNER's business model special remains in the hands of its own team:

- **JOINT DEVELOPMENT:** Close collaboration with the GOLDNER data team, transparent data models, direct access
- **CUSTOM LOGIC & DATA:** Focus on requirements not covered by the standard. One example is the catalog business: Linking mailing data with transactional contribution margins is highly complex. This very linking requires depth and clean logic – and shows why more than generic standard reports are needed in practice. The new architecture automates and precisely maps this complexity.
- **OPEN DATA WAREHOUSE:** Separation of data storage and usage enables access to all levels and integration of various tools
- **CODE-OWNERSHIP INSTEAD OF VENDOR-LOCK-IN::** By consistently using open-source components, all custom solutions reside in our own Git repository. The source code remains 100% visible, controllable, and independent for the client team.

A LOOK INSIDE THE ENGINE ROOM

Attention techies, data engineers and IT architects: Anyone wanting to know how a state-of-the-art, future-proof analytics infrastructure should be built today can get a look under the hood of the GOLDNER platform here.

The architecture at GOLDNER is designed as a multi-layered analytics platform with a clear separation between data extraction, orchestration, business modeling, analytical persistence, the metadata/documentation layer, and consuming access paths. This structure is crucial because it combines standardization in the platform core with flexibility for customer-specific extensions.



INGESTION, PROCESSING & ORCHESTRATION

At the ingestion and processing level, operational data from ERP, shop, marketing, marketplaces, CRM, and other specialized systems are integrated. GOLDNER's ERP system is Diva, based on Microsoft Dynamics 365 Business Central. The technical extraction and processing of the data is performed using a combination of **Dagster and minubo Core.**

- **Dagster** acts as an orchestration and pipeline layer: It controls execution sequences, technical dependencies, scheduling, monitoring, error paths, and job restarts. Furthermore, it serves as an integration framework for additional, non-standard sources such as call center data or catalog information.

- Building on this foundation, the **minubo Core** handles the business processing, standardization, and KPI calculation of the minubo data model. This ensures a clean separation between technical pipeline control and business model logic.

ANALYTICAL PERSISTENCE: THE BRONZE/SILVER/GOLD PRINCIPLE

The structuring of data processing follows the Bronze/Silver/Gold scheme as an architectural organizing principle. GOLDNER uses **Amazon Redshift** for analytical persistence and querying. The choice of this engine is not based on an isolated product decision, but rather on the general pattern of modern analytical platforms: Column-oriented storage and query engines are currently the dominant approach for analytical workloads, as they offer significant advantages over transaction-oriented database systems when dealing with large data volumes, column-selective access, high compression, and aggregation-intensive analyses.

This architectural principle is particularly well-suited for analytical applications with cross-channel data, extensive KPI models, and recurring reporting and self-service queries. minubo deliberately remains technology-neutral and can alternatively use **ClickHouse** or **BigQuery**, depending on the operating model, cloud environment, and customer preference.

OPERATIONAL ARCHITECTURE, GITOPS & CLOUD INFRASTRUCTURE

The operational architecture is designed for reproducibility and portability. By using **Kubernetes** and **Argo CD**, the platform can be deployed with a largely identical operating model on different infrastructure providers. This ensures that the environment is managed according to the same declarative and automated operational approach, regardless of the specific hosting provider.

For GOLDNER, this setup runs on **AWS**. minubo handles the setup, deployment, operation, and maintenance of the infrastructure, while GOLDNER retains full data sovereignty.

OPEN SOURCE AS PROTECTION AGAINST VENDOR LOCK-IN

A key architectural advantage lies in the extensive use of open technologies at the platform level. Components such as Dagster, Superset, Kubernetes, Argo CD, and OpenMetadata reduce the risk of deep platform lock-in and improve the transparency, interchangeability, and extensibility of the architecture. At the same time, the platform allows for pragmatic flexibility between different engines in the analytical persistence layer without altering the overall model.

SEMANTICS, DATA GOVERNANCE & DOCUMENTATION

The semantic and documentation layer is implemented using **OpenMetadata**. Customer-specific data models are documented and described transparently there; in addition, the minubo core data model can also be referenced centrally. This layer therefore primarily serves the purpose of finding, tracing, and documenting data models – not as an operational query or LLM access layer.

PROGRAMMATIC INTERFACES & DECOUPLED CONSUMPTION SIDE

The minubo Core also provides standardized access and integration services. These include:

- **MCP-Server** for LLM access
- A **Data API** for the programmatic use of the database
- A **Feed-Server** for standardized exports

From an architectural perspective, this is relevant because it makes not only human BI usage available, but also machine, programmatic and AI-like access as part of the platform core.

On the user side, the platform is intentionally decoupled from a single frontend. GOLDNER uses **Superset**, a visualization solution selected on request, and can simultaneously employ other access paths such as Power BI, Excel, ad-hoc SQL, or LLM-supported workflows via MCP and AI Briefing. This decoupling between the platform core and user tools is a key component of the architectural approach because it combines technical openness with business continuity.

WHAT HAS FUNDAMENTALLY CHANGED

GOLDNER describes the difference primarily as a relief in everyday life:

- Data logic becomes more transparent and consistent.
- Analysis can be set up faster because the foundation is stable.
- The system supports further development instead of hindering it.

Instead of building everything „one-to-one" in-house or outsourcing it entirely, GOLDNER is pursuing a modular-hybrid approach: The foundation is standardized, while the specific components remain under the control of GOLDNER's own team, where competition and complexity are most relevant.

Marcus Anton emphasizes: *„The minubo team took responsibility. The migration wasn't easy, but it worked. To this day, we work very closely together and tackle problems head-on. That's a crucial component – trust alongside all the product functionalities."*

RESULTS

WHAT HAS SPECIFICALLY IMPROVED FOR GOLDNER

To summarize the improvement in one sentence, it is this: Decisions became more reliable, faster, and less dependent on „who gets which figures and when." Specifically, this is best seen in the hard, operational changes within the business:

DATA BEFORE 6:00 AM – FROM REACTIVE MANAGEMENT TO PROACTIVE STEERING

While reports used to be available only from midday onwards, all valid data is now reliably available before 6:00 a.m.
Business effect: Management no longer starts the day with unanswered questions, but directly with answers. Decisions are no longer postponed, but implemented first thing in the morning based on data.

PERFORMANCE MARKETING – AGILE BUDGET ALLOCATION, UPDATED DAILY

The performance marketing team no longer operates in the rearview mirror, but can build on current, up-to-the-minute data.
Business effect: Advertising budgets can be shifted agilely on the same day to where they demonstrably achieve the highest ROI – a massive competitive advantage in the volatile e-commerce market.

DEMOCRATIZING DATA – ENDING THE EXPERT BOTTLENECK

Before the transformation, analytical expertise resided exclusively with a few specialists. Today, the setup is decentralized. Through targeted self-enablement (workshops & minubo Academy), sales, marketing, and purchasing independently access dashboards, reports, and (ad-hoc) analyses.
Business effect: Massive time savings for the data team and faster action in the specialist departments, based on the motto: *„We have the data and we decide now."*

SEASONAL PLANNING PROCESSES – SECURITY INSTEAD OF PRAGMATIC EMERGENCY SOLUTIONS

The timely delivery of highly detailed data streams for purchasing and sales used to be a constant risk factor.
Business effect: Seasonal planning processes are now based on precise historical data instead of estimates. This reduces the risk of incorrect purchases and optimizes inventory management.

STRATEGIC AGILITY – FLEXIBLY MANAGING GROWTH VS. PROFITABILITY

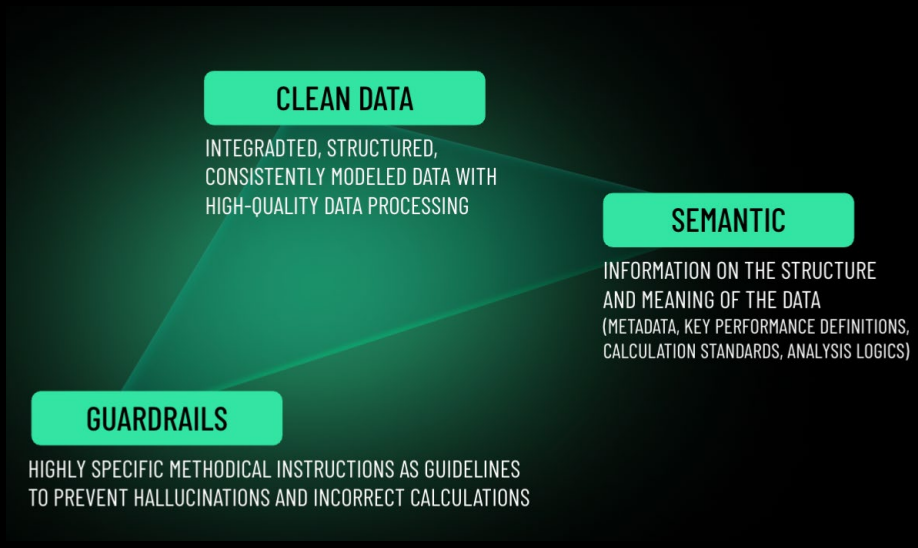
GOLDNER can now make key performance indicators so transparent that the company can shift its strategic focus extremely quickly depending on market conditions.
Business effect: Immediate visibility into which measures generate margin and which drive volume – for highly flexible management of competing business objectives.



AI READINESS AS THE NEXT LEVEL:

WHAT AI REALLY NEEDS:

It's understandable that AI was a topic of discussion. But GOLDNER didn't treat AI as a „buzzword project," but rather as a follow-up task – with a clear prerequisite. The old infrastructure couldn't reliably support AI applications. Now, with a stable and semantically described data foundation, the team can focus on what was previously blocked: concrete LLM projects and use cases.



Because if AI is to work reliably, it's not just about data volume or access. It's about reliability, and for that, it needs certain building blocks: clean data, semantics, and guardrails.
These are precisely the prerequisites that the new data architecture fulfills. Along the way, AI will not become an additional challenge, but rather an extension of what data processing at GOLDNER can already do.
As Marcus Anton describes it: "*The team works independently, and we have a solid foundation on which AI can truly deliver.*" – this reliability is the core of the progress.

GOLDNER IS AI-READY – THREE CONCRETE AI USE CASES IN PRACTICE:

EXAMPLE 1: STRATEGIC SALES FORECASTS & AD-HOC ANALYSES VIA MINUBO MCP

Business teams no longer need to wait for analysts to ask complex questions. AI assistants like ChatGPT or Gemini are directly and securely connected to the database via the minubo MCP (Model Context Protocol). If a team member wants to know, „How did order value develop by channel last quarter?", they simply type in the question and receive reliable insights directly from the validated database within seconds – without manual data import into LLM.

The real stress test: AI second opinion for strategic annual planning. The depth of this integration in practice is demonstrated by a concrete use case at GOLDNER: For many years, the company has operated a highly complex, organically developed Excel tool for revenue forecasting. Fed with customer cohort data, new customer behavior, and strategic planning, it serves as the central control instrument for customer lifetime value (CLV) and revenue expectations for the coming fiscal years. The goal was not to replace this established tool, but rather to validate it with data: Could a completely autonomous, AI-based approach achieve similar forecast values? To this end, a Learning Management Consultant (LLM) was commissioned to access historical customer behavior directly via the minubo MCP and independently generate a cohort-based revenue forecast for the next fiscal years.

The surprising result: The approach works extremely quickly. Initial valid trends were available after just one to two hours; after a few days of fine-tuning, the AI forecast values were absolutely reliable and plausible.

The business effect: Maximum decision certainty. What previously required weeks of special statistical projects or expensive external audits now delivers a reliable, data-driven second opinion directly from the operational live data model in a very short time.

EXAMPLE 2: THIRD-PARTY TOOLS ON A STABLE FOUNDATION

THREE.E, the agency that has supported GOLDNER in the field of performance marketing for many years, has built a new, AI-based simulation tool in record time using the minubo database. Where ROI would previously have been questioned, profitable tools can now be developed quickly. The stable database enables external partners to set up specialized solutions without having to spend months first clarifying data quality.

EXAMPLE 3: UNLOCKING UNSTRUCTURED DATA SOURCES (E.G., CALL CENTERS & PRINT)

GOLDNER is using the new database to access and link previously inaccessible data sources. For example, call center data can be transcribed, analyzed with AI, and linked to existing product data – to understand: „Which products are in demand but sold out?" or „Which catalog best suits which customer group?"

The analog world of print is also optimized: Intelligent data linking enables, for example, automatic catalog blocks for customers who indicate they are currently on extended trips. The result: **Measurable savings in advertising and printing costs.**

YOU TAKE THAT HOME WITH YOU.

KEY TAKEAWAYS

Opaque processes, delayed reports, a data team stuck in maintenance mode – these aren't problems only faced by large corporations. Almost every e-commerce company struggles with them at some point. GOLDNER demonstrates that there is a way out: from „no finished report in the morning" to ad-hoc analyses via LLM – scalable, transferable, and achievable for companies of all sizes with a modular BI platform like minubo. Three key takeaways that can be directly applied:

1) ERP PROCESSING DETERMINES WHETHER IT'S A SUCCESS OR A FAILURE.

Cleanly modeling and stabilizing ERP data is the essential foundation. The real challenge, however, lies in seamlessly and logically linking this highly transactional data with all other sources (shop, marketing, marketplaces). This is where the greatest leverage for quality and speed lies. Those who take this step seriously create the true prerequisite for everything that follows – from reliable daily reports to intelligent AI applications.

2) AI NEEDS SEMANTICS, CONSISTENCY AND GUARDRAILS

LLMs are only as good as the data and context they are given. Structure and meaning make results reliable. Without this foundation, AI becomes mere play. With it, it becomes a genuine steering tool.

3) THINKING MODULARLY MEANS: CONTROL STAYS WHERE IT BELONGS.

Standard solutions for the core, custom solutions for edge cases – this relieves the data team and allows them to focus on value creation. This is not only more efficient, but also the path to true empowerment instead of dependency.

ABOUT MINUBO

minubo is the business intelligence solution designed specifically for e-commerce. Whether as a modular component for your existing infrastructure or as a complete turnkey solution, minubo closes the gap between raw data and business impact. To do this, all relevant data – from ERPs and sales to marketing channels – is connected and modeled. This creates a consistent data foundation to manage profitability and fully leverage AI potential. The result: Full transparency instead of Excel chaos.
One platform. All data. Infinite possibilities for you, your team, and your AI.

HOW READY IS YOUR DATA TODAY FOR AI?

Would you like to learn how a modular data architecture can make your company „AI-ready"?

BOOK A DEMO

minubo GmbH
Schwanenwik 24
D - 22087 Hamburg

Phone: +49 (40) 2980675-101
Email: sales@minubo.com

www.minubo.com



ANDREAS FISCHER
CEO MINUBO