We Watched AI Tackle a Nightmare BI Project

Here’s What We Learned

Introduction

Legacy business intelligence (BI) systems often feel like a necessary burden. Over years, they accumulate immense “technical debt,” becoming tangled webs of complex, hard-to-maintain code, cryptic business logic, and frustrating performance issues. The prospect of modernizing these systems is daunting; they are notoriously slow, expensive, and risky projects that can easily stretch on for months, or even years, before delivering any real value.

But what if that entire dynamic could be flipped on its head? A new, AI-powered approach to analytics is proving that modernization doesn’t have to be a multi-year slog. This article distills the most impactful takeaways from a real-world proof-of-concept where a complex Power BI model was modernized. The AI was specifically tasked with untangling the notoriously difficult “Balance Amount” metric—a beast that had previously required multiple calls to decipher—achieving in minutes what was expected to take weeks and revealing a fundamentally new strategy for data transformation.

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1. The Speed Is Real

From Weeks of Manual Work to Minutes of Automation

The most immediate and shocking outcome of the project was the raw speed of the AI-powered migration. One of the most challenging metrics, a task that engineers

estimated would take **one to two weeks** of painstaking manual reverse-engineering and coding, was completed in just **minutes** using an AI tool called Cursor.

This isn’t just an incremental improvement; it’s a paradigm shift that fundamentally changes the ROI calculation for any modernization project. The analysis concluded that AI can handle up to **80 percent** of the heavy lifting when fed with the right artifacts—in this case, PowerShell exports from Power BI, extracted DAX definitions, database structure analyses, and YAML exports of the target system’s objects.

This speed de-risks initiatives by collapsing the feedback loop from months to minutes, allowing for rapid iteration and validation instead of a single, high-stakes “big bang” delivery. The primary bottleneck is no longer manual coding; it’s strategic review, moving engineers from low-value translation to high-value architecture and optimization.

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2. Taming Complexity, Not Just Translating Code

A critical lesson from the project was that the AI’s true power wasn’t just in direct code translation but in intelligently deconstructing complexity to create clarity. A single, monolithic, and hard-to-maintain DAX measure was broken down into **14 distinct, well-structured, and reusable metrics** in GoodData’s MAQL.

This decomposition directly addressed a core business challenge: **customization at scale**. For a company needing to adapt logic for hundreds of different clients, a monolithic measure is a dead end. By deconstructing the logic into 14 composable building blocks, the AI created an architecture inherently designed for multi-tenancy and customization.

This makes the business logic far easier to debug, enhance, and reuse, moving away from brittle code to a flexible, future-proof semantic model.

> *“The goal is to make it kind of future proof, maintainable kind of layered composable, so that you have smaller metrics that can be actually fixed and maintained. And then they can combine into higher level metrics.”*

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3. Flip the Script

Build the Business Layer First

Perhaps the most profound strategic shift demonstrated by the project was its counter-intuitive approach to the development lifecycle. The traditional model for analytics projects has always been a **"data warehouse first"** approach—speculative infrastructure builds that can take a year or more and often result in costly, misaligned systems that fail to meet the final business needs.

This project flipped that script entirely, adopting a **"use case first"** model of demand-driven data delivery. By using AI to rapidly build the business-facing semantic layer—the collection of metrics and definitions that business users actually interact with—the team could deliver value almost immediately.

The strategy becomes: **build the business logic that users need, validate it with them, and then supply the necessary data to it**. This outcome-oriented model dramatically reduces risk and accelerates time-to-value.

> *"don't do it in an old way because you will waste a year. You will absolutely waste a year… build it like this, build the business layer first and then supply the data and you will… you will simplify it. You will absolutely see productivity and quality gains."*

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4. "AI-Ready" Isn't a Buzzword—It's an Architecture

The ultimate goal of the migration wasn't just to move from one BI tool to another; it was to create a truly **"AI-ready architecture."** This concept moves beyond hype and points to the specific, foundational structure required for the next generation of reliable AI analytics.

An AI-ready architecture is built upon a **well-defined semantic layer**, which serves as the essential API for AI. This is where business logic is explicitly codified and governed, providing the context, definitions, and relationships that AI agents need to operate reliably.

Without this layer, AI agents are unguided, leading to untrustworthy or nonsensical results. The semantic layer provides the "grounding" that makes AI useful and trustworthy in an enterprise context.

> *" …letting AI understand the semantic, make it grounded. So we can trust it… we are moving into the world where… you want AI as a next step."*

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5. AI is the Ultimate Technical Debt Destroyer

In most organizations, analytics modernization is seen as "dirty work"—tedious, unglamorous tasks that are perpetually postponed. This reluctance is why technical debt in BI systems accumulates to dangerous levels, leaving them slow, unreliable, and impossible to innovate upon.

The AI-powered approach offers a powerful solution by automating the most painful parts of the process: reverse-engineering legacy code, untangling dependencies, and documenting hidden business logic.

More importantly, it acts as a **forcing function for architectural discipline**. By removing the primary excuse for letting technical debt accumulate—the sheer manual effort required—AI makes cleanup a strategic imperative with a clear, achievable path.

This enables a critical shift from a reactive mindset of fixing things only when they break to a proactive one of continuous architectural improvement, driving long-term agility.

Conclusion

The role of AI in data analytics is clearly evolving. It's no longer just an accelerator for existing processes; it's a catalyst for entirely new, more agile, and business-focused strategies.

By collapsing project timelines from months to days, AI empowers organizations to abandon the slow, risky models of the past. Instead, they can prioritize immediate business value, build future-proof architectures, and finally conquer the technical debt that has held them back for years.

If you could tackle your most complex analytics challenges in days instead of months, what business problem would you solve first?
