SAMPLE FICTIONAL EXERCISE

This case study is a fictitious scenario constructed solely to demonstrate the author's strategic and technical approach to solving complex organizational finance and capital oversight problems using low-code technology. All organizations, individuals, metrics, and events described herein are entirely fictional. No real companies, institutions, or individuals are represented.

CASE STUDY | VANTAGE INDUSTRIAL PARTNERS

Capital Allocation & Expenditure Oversight Platform

Manufacturing / Industrial | Finance Operations & Capital Intelligence

ORGANIZATION **Vantage Industrial Partners**

SOLUTION ARCHITECT **Manuel Munoz Jr.**

DOMAIN **Finance Operations — Capital Budget Oversight**

VERSION **1.0**

This document presents a complete project lifecycle narrative — from business case and constraint mapping through low-code architecture design, implementation, and measured outcomes. It demonstrates how a practical, sustainable capital oversight solution was delivered within six months at minimal technology investment using the Microsoft Power Platform.

01 EXECUTIVE SUMMARY

Turning a Critical Liability into a Governed Intelligence Asset

Vantage Industrial Partners operated a capital allocation and special projects oversight process that was, by any enterprise standard, dangerously fragile. Executive leadership relied on a single Excel workbook — managed by one analyst, updated manually, with no reconciliation to source systems, no version control, and no audit trail — to make multi-million dollar capital investment decisions.

The Finance team knew the process was broken. Leadership knew the reporting was inadequate. But available budget for a proper back-end data system was nonexistent, and the timeline was firm: a practical, sustainable solution within six months.

This engagement was commissioned to answer a deceptively difficult question: how do you build enterprise-grade oversight on a near-zero technology budget?

$0	5 mo.	100%	Zero
NET NEW TECH COST Built entirely on existing M365 licenses	**DELIVERED IN** 1 month ahead of 6-month mandate	**AUDIT TRAIL COVERAGE** All entries versioned & timestamped	**MANUAL REPORTS** Eliminated monthly annotation-heavy PDF

Core Outcome

A fully automated, governance-grade capital oversight platform — built on Power Apps, Dataverse, Power Automate, SharePoint, and Power BI — replaced a single-point-of-failure Excel process without purchasing a single new technology license.

Engagement Snapshot

INDUSTRY **Manufacturing / Industrial**

SCOPE **Enterprise Capital Budget & Special Projects**

STACK **Power Apps | Dataverse | Power Automate | SharePoint | Power BI**

DURATION **5 Months**

02 BUSINESS CASE

Why This Project Was Commissioned

During a quarterly capital review, Vantage Industrial Partners' CFO discovered a discrepancy between what the capital expenditure report showed and what the ERP system reflected. The delta was not small. Further investigation revealed that the Excel-based report — which had been the organization's primary instrument for tracking $38M in annual capital allocations — had not been reconciled against any source system in over two years.

The Finance Committee authorized an emergency remediation initiative with the following stated objective:

> **Project Charter — Stated Objective**
> *To design and implement a reliable, governed capital allocation tracking platform that provides Finance leadership and executive management with accurate, real-time visibility into budget utilization, project-level variances, and capital investment outcomes — without requiring a new back-end data system or incremental technology budget.*

Commissioning Drivers

R	**Reconciliation Failure** The primary capital expenditure report had never been formally reconciled against the ERP. Amounts carried in the Excel model had drifted from actuals through a combination of manual entry errors, rounding adjustments, and undocumented assumptions layered in over time. Leadership was making decisions on figures no one could defend.
F	**Single Point of Failure** One analyst owned, maintained, and distributed the capital report. No backup, no documentation of the calculation methodology, no version history. When that analyst was unavailable — for vacation, illness, or departure — the process stopped entirely. During one quarter, the report was delivered 11 days late.
V	**Visibility Gap** Management could see aggregate budget vs. actual figures, but had no ability to drill into project-level utilization, identify which capital allocations were at risk of lapsing unspent, or flag projects trending toward overruns before they breached approved limits.
C	**Compliance Exposure** The organization was subject to internal audit on capital spending approvals. The Excel-based process had no approval workflow, no documentation trail, and no mechanism to demonstrate that expenditures had been reviewed and authorized at the appropriate level. Audit had flagged this as a material process weakness for two consecutive years.

Project Constraints — Non-Negotiable

CONSTRAINT No budget for new back-end database infrastructure, ERP integration, or third-party tooling beyond existing Microsoft 365 licenses.

CONSTRAINT Solution must be operational and in use by Finance within six months. No phased rollout — full capability at go-live.

CONSTRAINT Must be maintainable by the Finance team without ongoing IT involvement. Complexity ceiling: what a senior analyst can administer.

CONSTRAINT Must preserve connectivity to existing SharePoint document libraries used for capital approval evidence storage.

Project Authorization & Scope

- Authorized budget: Internal labor only — no external software spend
- Timeline: 6 months from kickoff to full production deployment
- In scope: All capital allocation categories — CapEx, special projects, facility investments, equipment procurement
- Out of scope: ERP system integration (Phase 2 dependency); automated GL feed; procurement workflow
- Success criteria: Real-time dashboard live for executive review; approval workflow operational; zero manual report distribution; reconciliation process documented and executable by any Finance team member

03 STAKEHOLDER REGISTER

Project Team & Accountable Parties

The following individuals represented the core project team and primary stakeholders. Given the constrained nature of this engagement, the team was intentionally lean — a deliberate design decision to minimize coordination overhead within the six-month window.

NAME	TITLE	DEPARTMENT	PROJECT ROLE
Manuel Munoz Jr.	Solution Architect & Developer	External Engagement	Led end-to-end solution design — Power Apps canvas application, Dataverse schema, Power Automate workflows, SharePoint integration, and Power BI reporting layer. Sole technical implementer.
Gerald Ashworth	Chief Financial Officer	Finance	Executive sponsor and primary decision authority. Defined the business requirements, set the six-month deadline, and held final approval on all governance design decisions.
Miriam Castillo	VP of Financial Planning & Analysis	Finance — FP&A	Primary business stakeholder. Defined the capital allocation taxonomy, approval thresholds, and variance reporting requirements. Primary UAT lead and ongoing platform owner post-deployment.
Thomas Engel	Senior Financial Analyst	Finance — FP&A	Subject matter expert for the existing Excel process. Provided the legacy data model documentation, identified undocumented calculation nuances, and served as the continuity bridge during migration.
Patricia Odum	Director of Internal Audit	Internal Audit	Defined audit trail and approval workflow requirements. Reviewed governance design before deployment to confirm it would satisfy audit findings from prior two years.
Kevin Tran	IT Systems Manager	Information Technology	Confirmed Microsoft 365 license scope, provisioned Dataverse environment, and validated SharePoint permissions. Limited engagement — solution was designed to minimize IT dependency.
Sandra Okonkwo	Capital Projects Manager	Operations — Capital Projects	Represented the primary consumer of the capital dashboard. Validated that project-level drillthrough views aligned with how capital project managers track and report utilization.

04 THE REALITY OF THE PROBLEM

A $38M Decision Process Built on a Single Spreadsheet

The capital expenditure report was not just inadequate — it was actively dangerous. Not because the analyst maintaining it was careless, but because no process had ever been designed around it. It had grown organically over years, accumulating undocumented assumptions, embedded formula exceptions, and annotation-heavy workarounds that only one person fully understood.

> **The Real Problem**
> *Management was not receiving a capital report. They were receiving one person's best reconstruction of what had been spent, layered with personal judgment calls about what to include, what to footnote, and what to quietly adjust — because the source data could not be trusted without it.*

What Was Happening

The Excel file had 14 tabs. Seven of them contained formulas that cross-referenced each other in ways no one could fully trace. Three tabs were labeled 'DO NOT TOUCH.' The monthly update process took two days and required the analyst to manually pull figures from four separate systems, apply judgment-based adjustments for timing differences, and write paragraph-length footnotes explaining why the numbers looked the way they did.

Where It Broke Down

When executive leadership asked questions — why is Project 7 showing an overage? what is the remaining balance on Facility Expansion? — the analyst had to reconstruct the answer in real time, often needing to check with the project manager, reference the original approval document in a SharePoint folder, and manually recalculate before responding. That cycle routinely took 24 to 72 hours.

05 WHY THIS WAS HARD

The Constraints Were the Problem

Most capital tracking problems can be solved with the right technology. The challenge at Vantage Industrial Partners was that the right technology — an ERP extension, a proper financial data warehouse, a purpose-built capital management system — was explicitly unavailable. The budget was zero. The mandate was firm. The solution had to be built from what already existed.

That constraint transformed a relatively straightforward data problem into a design problem. The question was not what technology to buy, but how to engineer governance, automation, and auditability out of tools the organization already owned and its Finance team could already operate.

B	**Budget Constraint** No incremental technology spend was available. The solution had to be built entirely within the existing Microsoft 365 licensing footprint — Power Apps, Dataverse, Power Automate, SharePoint, and Power BI — all of which were already licensed but largely unused by the Finance team.
T	**Timeline Constraint** Six months was the non-negotiable deadline. A phased rollout was not acceptable — leadership needed full capability at go-live, not a minimum viable product with features to follow. Every design decision had to be evaluated against whether it could be delivered in the available window.
M	**Maintainability Constraint** The solution had to be administerable by the Finance team without ongoing IT dependency. Any architectural choice that required developer support to maintain was effectively excluded. This ruled out code-heavy approaches and demanded a design that senior Finance analysts could own end-to-end.
L	**Legacy Data Constraint** Years of capital tracking history existed only in the Excel workbook. Migration was required, but the data quality was poor — inconsistent categorization, duplicate entries, missing approval references, and period-end adjustments with no corresponding source documentation.

Architect's Note

Constraints are not the enemy of good architecture. They are the design brief. When you cannot buy your way to a solution, you have to think harder about what you are actually trying to achieve — and that discipline often produces a more useful result than an unconstrained one.

06 MY APPROACH

Design for the Constraint, Not Against It

The approach to this engagement was shaped entirely by the constraint map. Before any tool was selected or any screen was sketched, the constraints were treated as architectural inputs — each one narrowing the design space until the correct solution became clear rather than chosen.

Constraint-to-Design Mapping

The following table shows how each project constraint directly drove a specific architectural decision:

CONSTRAINT	DESIGN RESPONSE	WHY THIS WORKS
No budget for new backend infrastructure	Dataverse as the governed data layer (included in M365 licensing)	Dataverse provides relational tables, referential integrity, audit logging, and role-based security — equivalent to a purpose-built database, at zero additional cost.
Must be maintainable without IT involvement	Power Apps canvas app — no-code forms and validation rules	Canvas apps are administerable by business users. The Finance team can modify form layouts, add fields, and update validation logic without writing code or filing IT tickets.
Approval trail required for audit compliance	Power Automate approval workflows with Dataverse write-back	Every approval action is recorded in Dataverse with timestamp, approver identity, and decision — creating a native audit trail that satisfies Internal Audit's requirements.
SharePoint already used for approval documents	SharePoint as document library integration layer	Rather than rebuilding document storage, Power Apps was connected to existing SharePoint libraries — preserving existing evidence files while adding structured metadata and retrieval capability.
Executive visibility required — no technical users	Power BI with pre-built views, no ad-hoc exploration required	Reports were designed around specific decision questions, not open-ended analysis. Fixed, curated views load faster, require no training, and are harder to misinterpret.

Discovery Objectives

- Document every calculation nuance and footnote embedded in the legacy Excel model — the undocumented logic was the most critical artifact to capture
- Define a canonical capital allocation taxonomy: categories, subcategories, approval thresholds, and variance trigger levels
- Map the approval chain for each allocation type — who approves what, at what dollar threshold, with what documentation requirement
- Establish a reconciliation protocol: how often, against what source, and who is responsible for certifying the numbers
- Define the minimum Power BI view set required for executive decision-making — what questions must this report answer, and for whom

07 ARCHITECTURE & DESIGN DECISIONS

Enterprise Governance on an M365 Footprint

The platform was designed as a five-layer stack, each layer mapped to a specific capability gap in the legacy Excel process. No component was selected because it was available — each was selected because it was the right answer to a specific problem the constraints made visible.

End-to-End Architecture

DATA ENTRY LAYER Power Apps (Canvas App) — Structured budget entry, project tracking forms, validation rules, role-based access

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STORAGE LAYER Microsoft Dataverse — Relational tables, referential integrity, audit trail, versioning

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INTEGRATION LAYER SharePoint — Document library for supporting evidence, approval records, legacy file bridge

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AUTOMATION LAYER Power Automate — Approval workflows, overage alerts, reconciliation triggers, email notifications

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ANALYTICS LAYER Power BI — Executive dashboards, variance analysis, utilization tracking, drill-through by project / cost center

Component Rationale

Power Apps (Canvas App)	The structured entry interface replacing the Excel workbook. Canvas apps enforce data validation at the point of entry — preventing the category inconsistencies, free-text amounts, and missing fields that had corrupted the legacy dataset. Role-based access ensured that only authorized users could create, edit, or approve entries.
Microsoft Dataverse	The governed data layer. Dataverse replaced the Excel file as the system of record, providing relational table structure, referential integrity between allocations and projects, built-in audit logging of all record changes, and native integration with Power Apps and Power BI — all within the existing M365 license.
Power Automate	The automation and governance layer. Workflows were built for three purposes: approval routing (multi-level, threshold-based), overage and underutilization alerts (triggered at configurable variance thresholds), and reconciliation reminders (scheduled, assigned to named owners). All workflow actions write back to Dataverse for auditability.

SharePoint	The document integration layer. Rather than replacing the existing evidence library, SharePoint was connected to Power Apps as a document attachment mechanism. Users uploading approval documentation, invoices, or change orders attach them directly within the Power Apps form — stored to the existing SharePoint library with structured metadata.
Power BI	The decision intelligence layer. Reports were designed around the five executive questions that had previously required 24-72 hours to answer manually: budget vs. actual by project, overage risk flag, underutilization alert, approval status summary, and year-to-date capital deployment vs. plan. Each view was certified and scheduled for automated refresh.

08 INSIDE THE BUILD

Selected Artifacts & Design Details

The following artifacts represent key decisions made during implementation. Each one addresses a specific gap in the legacy process — not a feature added for completeness.

Artifact 1 — Dataverse Schema Design

The data model was designed to reflect the capital allocation hierarchy as Finance actually understood it — not as the Excel file had accidentally encoded it. Three core tables were established, with referential integrity enforced between them:

Capital_Allocation

allocation_id (PK) | fiscal_year | category | approved_budget | allocation_owner | approval_status | approval_date | approved_by

Project_Expenditure

expenditure_id (PK) | allocation_id (FK) | project_code | committed_amount | actual_amount | expenditure_date | supporting_doc_ref | entry_by | modified_on

Variance_Flag

flag_id (PK) | expenditure_id (FK) | flag_type (Overage|Underutil) | variance_pct | threshold_breached | flag_date | resolved_by | resolution_date

[Visual Placeholder: Dataverse table relationship diagram — Capital_Allocation → Project_Expenditure → Variance_Flag]

Artifact 2 — Power Automate Approval & Alert Workflow

Three workflows were built to handle the governance requirements that the Excel process had never addressed. All workflow outcomes write back to Dataverse, creating the audit trail that Internal Audit had flagged as missing for two consecutive years.

1	**Approval Routing**	Triggered on new Capital_Allocation submission. Routes to Level 1 approver (FP&A VP) for allocations under $500K; to CFO for allocations above. Records approval decision, timestamp, and approver identity to Dataverse. Rejected submissions trigger a revision request notification with required correction notes.
2	**Overage Alert**	Triggered when actual_amount on any Project_Expenditure record exceeds committed_amount by the configured threshold (default: 10%). Creates a Variance_Flag record, notifies the allocation owner and FP&A VP, and adds the project to the Overage Risk queue in Power BI.
3	**Underutilization Alert**	Scheduled weekly. Identifies any allocation where actual_amount is below 40% of approved_budget with fewer than 60 days remaining in the fiscal year. Flags as

underutilization risk, notifies project manager, and escalates to CFO if unresolved within 5 business days.

[Visual Placeholder: Power Automate workflow diagram — approval routing with branch logic and Dataverse write-back]

Artifact 3 — Power BI Variance Analysis (DAX)

Variance calculations in the legacy Excel model were inconsistent and often annotated with exceptions. In Power BI, all variance logic was implemented as certified DAX measures — replacing annotation-dependent interpretation with a single, governed calculation available across all reports.

```
Budget_Variance_Pct =
  VAR _Approved =
    SUM( Capital_Allocation[approved_budget] )
  VAR _Actual =
    SUM( Project_Expenditure[actual_amount] )
  VAR _Variance = _Actual - _Approved
RETURN
  IF(
    _Approved = 0, BLANK(),
    DIVIDE( _Variance, _Approved )
  )

Utilization_Rate =
  DIVIDE(
    SUM( Project_Expenditure[actual_amount] ),
    SUM( Capital_Allocation[approved_budget] ),
    BLANK()
  )
```

Design note: BLANK() is returned rather than 0% when no approved budget exists — preventing misleading utilization figures for unfunded allocations and maintaining visual accuracy in overage/underutilization heatmaps.

[Visual Placeholder: Power BI dashboard — budget vs. actual variance heatmap by project, utilization rate gauge, overage risk queue]

09 FROM DATA TO DECISION

Five Questions. Five Views. All Answered in Seconds.

The reporting layer was designed around the five questions that executive management had previously waited 24-72 hours to have answered. Each question maps to a dedicated view in the Power BI report. No ad-hoc exploration is required — and none was offered.

> **Design Philosophy**
> *An executive capital report is not a data exploration tool. It is an answer machine. It should answer the questions leadership actually asks — with no ambiguity, no footnotes, and no need to call the analyst.*

Executive Summary View

- Total capital deployed vs. approved budget YTD
- Count and value of active overage flags
- Count and value of underutilization risk allocations
- Approval status summary — pending, approved, rejected

[Visual Placeholder: Executive summary — KPI cards with variance indicators]

Project-Level Drillthrough

- Budget vs. actual by individual project code
- Committed vs. actual spend with remaining balance
- Variance percentage with color-coded threshold status
- Direct link to supporting approval document in SharePoint

[Visual Placeholder: Project drillthrough — variance table with threshold flags]

Overage Risk & Underutilization Queue

Two dedicated queue views were designed for the FP&A team — not for executive consumption, but for the operational management of the capital portfolio. The Overage Risk queue showed every allocation trending above threshold, sorted by variance severity. The Underutilization queue flagged allocations at risk of lapsing unspent, sorted by days remaining in the fiscal period.

Both queues were designed to be actionable directly from Power BI — a single click opened the corresponding Power Apps record for the allocation owner to submit a revision or provide a resolution note.

> **The Shift**
> *From: A two-day manual reconstruction process followed by a 14-tab Excel file with paragraph-length footnotes | To: Real-time, self-service answers to every capital oversight question — available to any authorized stakeholder, at any time, on any device.*

10 BUSINESS IMPACT

Governance Delivered Within the Constraint

The following outcomes were measured at 90 days post-deployment, based on Finance team operational data, Internal Audit review findings, and executive stakeholder feedback.

$0	96%	100%	~$2.1M
TECHNOLOGY COST	**ENTRY TIME REDUCTION**	**AUDIT TRAIL COVERAGE**	**RISK EXPOSURE CLOSED**
Zero new licenses required	2 days to under 2 hrs per cycle	First clean audit finding in 3 years	Unreconciled variance surfaced + resolved

BEFORE	AFTER
Single Excel workbook maintained by one analyst; 11-day late delivery in one quarter; no backup or documentation	Dataverse-backed platform accessible to entire Finance team; any authorized user can enter, review, and report — no single point of failure
Capital report never formally reconciled against ERP; $2.1M variance discovered unaddressed at audit	Reconciliation protocol built into the quarterly close process with named owner, documented steps, and Dataverse confirmation record
No approval workflow; audit flagged capital expenditure authorization as a material weakness for two consecutive years	Multi-level Power Automate approval workflow with full audit trail in Dataverse; Internal Audit closed the prior finding at first post-deployment review
Executive questions required 24-72 hours for analyst to research and respond	All five core executive questions answered in real time via Power BI; average response time measured at under 30 seconds post-deployment
Report required paragraph-length footnotes to explain calculation nuances; recipients needed guide to interpret	Certified DAX measures with governance documentation; zero annotation required; report is self-explanatory to any Finance audience

Most Important Outcome

Internal Audit closed a material weakness finding that had persisted for two consecutive years — at zero incremental technology cost. That outcome was not achieved by spending money on better tools. It was achieved by designing governance into the tools the organization already owned.

11 TRADE-OFFS & LESSONS

What Was Optimized, What Would Be Refined

Every constrained engagement requires explicit trade-offs. In this case, the constraints were so specific that several trade-offs were architectural necessities, not preferences.

DECISION POINT	CHOSEN APPROACH	RATIONALE
Data storage layer	Dataverse over SQL Server	SQL Server would have provided more query flexibility, but required IT provisioning, connection management, and developer support to maintain. Dataverse was self-service for Finance and included in the existing license — the right trade-off given the maintainability constraint.
ERP reconciliation	Manual quarterly reconciliation protocol	An automated ERP feed was the ideal solution and was explicitly out of scope for Phase 1. The protocol established a documented, owned, and scheduled manual reconciliation as the interim governance mechanism — better than nothing, and designed to be replaced in Phase 2.
Report complexity	Fixed views, no self-service	A self-service Power BI model would have been more flexible but required user training and risked misinterpretation in an executive context. Fixed, certified views with clear labels and no ad-hoc capability were the more appropriate design for this audience.
Legacy data migration	Manual clean-room migration	Automated migration of the legacy Excel data would have imported the data quality problems along with the data. A manual clean-room migration — reconciled by Thomas Engel against the original source documents — added time but produced a trustworthy historical baseline.

What I Would Refine in a Next Version

- Implement a direct ERP integration via Power Automate to automate the quarterly reconciliation — eliminating the last remaining manual step in the process
- Extend the Dataverse schema to capture commitment dates and project milestones, enabling forward-looking capital deployment forecasting rather than only backward-looking variance analysis
- Add a Power Apps model-driven app view for the Capital Projects team — the current canvas app is optimized for Finance entry; project managers need a different interface designed around their workflow
- Implement row-level security in Power BI at the cost center level — currently all Finance users see all projects; budget owners should see only their allocated projects plus aggregate summaries

> **Key Principle Reinforced**
>
> *The absence of budget is not the absence of options. It is a constraint that forces you to ask what you are actually trying to achieve — and whether the tools you already have, designed correctly, are sufficient to achieve it. In this case, they were.*

12 KEY TAKEAWAY

Governance Is a Design Problem, Not a Budget Problem

This engagement demonstrated something that is counterintuitive in enterprise technology: the quality of a solution is not proportional to the budget spent on it. It is proportional to the clarity of thinking applied to it.

The capital oversight platform at Vantage Industrial Partners is more governed, more auditable, and more reliable than systems organizations spend hundreds of thousands of dollars on — because the constraints forced every decision to be justified, not just made.

> *"A constrained solution that works is worth more than an unconstrained solution that requires a budget nobody has and a timeline nobody can meet."*
>
> — Manuel Munoz Jr.

This Case Study Demonstrates

- ✓ Constraint-driven architecture — every design decision was a direct response to a named constraint, not a preference
- ✓ Governance without infrastructure — enterprise-grade auditability, approval workflows, and reconciliation protocols built on existing licensing
- ✓ No-code/low-code judgment — knowing when Power Platform is the right answer, and how to design it to production-grade standards
- ✓ Practical sustainability — a solution the Finance team can own, maintain, and extend without IT involvement
- ✓ Trade-off transparency — what was deferred, why it was deferred, and how the architecture accommodates its eventual addition