Designing and Delivering a Scalable Project Management Simulation: The Project Management Case Challenge

A joint initiative with Project Management Institute (PMI) - Los Angeles Chapter and UCLA's Master of Applied Statistics and Data Science (MASDS) Program

by

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Executive Summary

The Project Management (PM) Case Challenge was a fully virtual, four-week project simulation developed in collaboration with the Project Management Institute, Los Angeles Chapter (PMI-LA) and UCLA's Master of Applied Statistics and Data Science (MASDS) program. The program positioned students and early-career professionals as a junior project team responsible for planning and delivering an end-to-end project under realistic uncertainty.

The challenge addressed a growing gap between employer demand for job-ready project professionals and increasingly limited entry-level opportunities to acquire meaningful, end-to-end experience. As traditional roles and internships offer narrower exposure, the simulation provided participants with a structured, portfolio-ready project experience that closely mirrors real-world project delivery outside formal employment pathways.

This effort also advanced the strategic objectives of both partner organizations. For PMI-LA, it strengthened early-career talent development, expanded community engagement, and reinforced the chapter's leadership in applied project management education through academic partnership. For UCLA MASDS, the program demonstrated the applied value of statistical training by embedding quantitative decision-making within a realistic project context, while enhancing the program's academic–industry pipeline and external visibility.

The simulation was delivered entirely online through a purpose-built website and structured around standard project management process groups, aligned with the Project Management Body of Knowledge (PMBOK). Teams progressed through a series of modular case scenarios involving a fictitious manufacturing company facing a production bottleneck, producing professional artifacts such as project charters, work breakdown structures, risk registers, Monte Carlo simulations, change requests, and final executive presentations. The design emphasized professional realism and self-directed problem solving, requiring participants to navigate ambiguity and justify decisions.

In its inaugural run from September 8 to October 6, 2025, the PM Case Challenge attracted 230 registrations across 10 universities. Thirteen teams, comprising more than 50 participants, completed the full sequence of deliverables and submitted final presentations. Submissions were evaluated by a panel of industry practitioners and academic faculty using a streamlined, rank-based judging process, with top teams recognized at PMI-LA's Professional Development Day. The initiative was delivered with minimal direct financial cost (approximately $114) and an estimated 200–250 hours of organizer time spread over six months, largely concentrated in initial concept development, content creation, and technical setup.

Post-challenge survey responses, while limited in number, indicate that participants experienced meaningful gains in confidence and perceived readiness for project-oriented roles. Respondents rated the clarity and structure of the simulation highly and reported increased confidence performing core project management tasks and presenting project work in professional contexts. Qualitative observations further suggest that the combination of portfolio-ready artifacts, a coherent end-to-end project narrative, and public recognition moments (e.g., awards, certificates, and conference visibility) materially strengthened participants' ability to differentiate themselves in interviews, resumes, and professional networking contexts.

Based on this first implementation, three core lessons emerge for other PMI chapters seeking to replicate or adapt the PM Case Challenge model:

1. **Anchor the simulation in realistic, modular content.** Ground the case in a plausible operational scenario and structure deliverables around standard project management process groups to support reuse, updating, and alignment with learning objectives.

2. **Leverage lightweight, low-cost infrastructure.** Use browser-based tools, static web delivery, centralized communication, and streamlined submission and judging

workflows to minimize overhead and operational risk.

3. **Treat the challenge as a strategic talent and partnership vehicle.** Align the initiative with chapter and academic program goals around experiential learning, early-career development, and community impact, and design visible recognition moments that participants can leverage in portfolios, resumes, and interviews.

Overall, the PM Case Challenge demonstrates that a scalable, high-impact project management simulation can be delivered with modest financial resources when supported by thoughtful design, clear operational processes, and strong collaboration between professional associations and academic partners.

Figure 1: Award Ceremony Group Photo

Abstract

The Project Management (PM) Case Challenge was a joint initiative between the Project Management Institute, Los Angeles Chapter (PMI-LA) and UCLA's Master of Applied Statistics and Data Science (MASDS) program. The initiative was designed as a fully virtual, four-week project simulation in which students and early-career professionals assumed the role of a junior project team responsible for delivering a realistic end-to-end project under uncertainty.

The challenge ran from September 8 to October 6, 2025, and was delivered entirely online through a purpose-built website. A total of 230 individuals registered, representing 10 universities. 13 teams - comprising more than 50 participants - completed the full sequence of deliverables and submitted final presentations. Submissions were evaluated by a panel of industry practitioners, with the top three teams recognized at PMI-LA's Professional Development Day.

This paper describes the motivation for the PM Case Challenge, the design principles that guided its development, and the processes used to deliver the simulation at scale with minimal financial overhead. It is intended as a practical reference for PMI chapters, academic programs, and professional organizations seeking to create experiential learning opportunities that bridge the gap between classroom instruction and real-world project work.

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CHAPTER 1

Introduction

1.1 Background

Project management is increasingly recognized as a critical capability across industries. According to the Project Management Institute's 2025 *Global Project Management Talent Gap Report*, the global workforce of project professionals is currently estimated at nearly 40 million, with up to 30 million additional practitioners needed by 2035 to meet global demand (Project Management Institute, 2025). This projected gap reflects broad trends in digital transformation, infrastructure investment, and organizational change that are driving increased reliance on structured project work.

At the same time, project management practice is becoming more data-driven, with organizations using real-time data, analytics, and predictive techniques to anticipate risks and inform decisions across the project lifecycle. Research and practitioner reports note that advanced data analytics and AI-enabled tools are increasingly integrated into core project workflows, enabling proactive risk mitigation and evidence-based planning rather than reliance on intuition alone (Ajibade, 2024).

In this context, emerging professionals must develop both foundational project management skills and the ability to apply analytical insight if they are to contribute meaningfully to modern project environments.

1.2 Problem

Despite strong long-term demand, early-career pathways into project and related work have tightened. Labor market data from Indeed's Hiring Lab show that postings for junior roles declined in 2025 as overall hiring demand cooled, indicating a relative squeeze for new entrants into professional careers (Indeed Hiring Lab, 2025). This creates a structural dilemma: the need for capable project professionals is rising, yet opportunities for students and early-career professionals to gain meaningful, on-the-job project experience through entry-level roles are shrinking.

1.3 Opportunity

The PM Case Challenge was conceived as a targeted response to this gap. The organizing team intentionally designed the challenge as a fully virtual, four-week experiential simulation to provide students and early-career professionals with realistic, end-to-end project experience without requiring prior employment in formal project roles.

The simulation emphasized ambiguity, real-world trade-offs, and professional artifact production. Participants were required to interpret evolving information, select and apply appropriate tools, conduct quantitative analysis where relevant, and communicate recommendations clearly - mirroring the decisions and outputs expected of project professionals in practice.

The primary objectives of the simulation were to enable participants to:

- Build working familiarity with end-to-end project management across standard process groups (initiation, planning, execution, control, closure).
- Apply widely used project management and analytical tools for planning, risk assessment, and performance evaluation.
- Integrate statistical and data-driven methods into forecasting and decision-making.

- Produce professional artifacts and narratives suitable for portfolios, resumes, and interviews.
- Develop peer and practitioner networks through community spaces and events.

1.4 Alignment with Strategic Goals

In addition to addressing a market need for applied project experience, the PM Case Challenge was intentionally aligned with the strategic priorities of both the Project Management Institute, Los Angeles Chapter (PMI-LA) and UCLA's Master of Applied Statistics and Data Science (MASDS) program. This alignment ensured that the initiative delivered value not only to participants, but also to the partner organizations supporting its development and execution.

For PMI-LA, the challenge functioned as an early-career talent development initiative while creating meaningful engagement opportunities for members through judging, mentoring, and event participation. The collaboration with UCLA also reinforced the chapter's role in applied project management education and expanded its community impact through academic partnership.

For UCLA MASDS, the challenge complemented the program's emphasis on applied, real-world problem solving by embedding quantitative techniques - such as risk modeling and Monte Carlo simulation - within a realistic project management context. This structure enabled students to apply statistical methods to managerial decision-making while strengthening academic–industry connections and increasing program visibility.

These alignments positioned the PM Case Challenge as a sustainable model for workforce development and experiential learning. Delivered as a competitive, end-to-end simulation, it functioned as a proxy for early-career project experience, and provided participants with portfolio-ready evidence of capability that can be evaluated by employers and peers.

CHAPTER 2

Literature Review

2.1 Growing Demand for Project Management Capability

Industry research points to sustained and accelerating demand for project management capability across sectors. PMI's *Global Project Management Talent Gap* work highlights a widening gap between the supply of qualified project professionals and organizational demand. Current estimates place the global project management workforce at approximately 40 million, with projections indicating that up to 30 million additional project professionals may be required by 2035 (Project Management Institute, 2025).

This demand is closely tied to macroeconomic trends. As economies increase investment in digital transformation, infrastructure modernization, and organizational change, a greater share of economic activity is executed through discrete projects and programs rather than routine operations. In this context, project management has emerged as a core managerial capability rather than a niche operational function.

2.2 Constrained Entry-Level Pathways for Early-Career Professionals

While long-term demand for project capability is strong, access to early-career roles that traditionally serve as training grounds for project work has become more limited. Labor market analyses indicate that junior postings can decline more sharply than mid- and senior-level roles during periods of uncertainty. Indeed's Hiring Lab reports that postings for junior roles fell in 2024–2025, consistent with a disproportionate squeeze on new labor-market entrants (Indeed Hiring Lab, 2025). Complementary findings from the National Association of Colleges and Employers (NACE) indicate a growing emphasis on demonstrated skills,

competencies, and prior experience in graduate hiring, reflecting rising expectations for job readiness among entry-level candidates. (National Association of Colleges and Employers, 2024).

Together, these trends point to a structural challenge: expectations for job-ready project skills are rising, while opportunities to develop those skills through traditional on-the-job pathways are becoming less reliable.

2.3 Experiential and Competition-Based Learning as a Bridge

Experiential learning theory provides a foundation for addressing this gap. Kolb conceptualizes learning as a cyclical process involving concrete experience, reflective observation, abstract conceptualization, and active experimentation (Kolb, 1984). Within this framework, learners build transferable capability by engaging with realistic problems and iterating on their approaches.

In management and business education, case competitions and simulation-based challenges are widely used applications of experiential learning principles. These formats can expose participants to ambiguity, incomplete information, and trade-offs that resemble organizational contexts, while also developing analytical reasoning, professional communication, and teamwork under time constraints.

From a practical standpoint, competition-based simulations are scalable, produce tangible work artifacts, and create structured settings in which performance can be evaluated by practitioners - making them well-suited to bridging the gap between academic preparation and workplace expectations in project-oriented fields.

2.4 Implications for the PM Case Challenge

The PM Case Challenge was informed by these trends: growing demand for project capability, constrained early-career entry points, and the effectiveness of experiential learning in developing applied skill. By combining a realistic narrative case, phased project deliverables, and a competitive simulation format, the challenge was designed to replicate key elements of real project work while remaining accessible to participants without prior professional project experience.

CHAPTER 3

Case Challenge Content

3.1 Overview

The PM Case Challenge was structured as a sequence of modular scenarios designed to mirror the progression of a real project. The challenge consisted of ten core modules, each introducing a new phase, decision point, or constraint that participants might encounter in practice. The experience culminated in a final presentation in which teams synthesized their decisions, analyses, and outcomes into a coherent project narrative.

3.2 Module Design and Components

Each module followed a consistent internal structure to reinforce professional workflows while avoiding prescriptive instruction. Modules typically included:

- A scenario overview describing the current project context and objectives,
- Memos from key stakeholders introducing new constraints, priorities, or risks, and
- Templates or submission guidelines outlining expected deliverables.

3.3 Challenge Structure by Process Group

Table 3.1: Challenge structure by project management process group

Phase	Description
Initiation	Develop project charters and stakeholder registers that align with organizational objectives
Planning	Create comprehensive project plans including work breakdown structures, schedules, cost baselines, and risk management strategies
Execution	Adapt to changing circumstances. Manage project execution while handling changes and stakeholder expectations
Control	Monitor performance and implement corrective actions as needed. Develop data visualizations to communicate project performance
Closure	Conduct project closure activities and document lessons learned. Develop a final presentation summarizing the project journey

3.4 Case Modules and Deliverables

Participants assumed the role of a junior project team at a fictitious tractor manufacturing company ("TractorCo") facing a production bottleneck in its paint department, where limited capacity constrained overall output and delayed downstream assembly.

The core objective was to plan and execute the installation of a new paint booth to relieve this constraint. Teams evaluated operational impacts, financial considerations, and stakeholder priorities while adapting to evolving project conditions. As the simulation progressed, participants balanced competing objectives and produced a sequence of professional project artifacts aligned with real-world project management practice.

The challenge was structured as a sequence of modules aligned with standard project management process groups. Each module introduced a specific task or decision point and required teams to produce a corresponding deliverable. Table 3.2 summarizes the full set of modules, tools applied, and expected outputs across the lifecycle of the challenge.

Table 3.2: Case challenge modules, tools, and deliverables

Module #	Module Name	Tool(s) / Skills Applied	Project Deliverable(s)
Intro			
0	Business Case Intro	–	–
Initiation			
1	Laying the Foundation	MS Word; project scoping and charter development	Project Charter
2	Identifying Key Players	MS Excel; stakeholder identification and influence analysis	Stakeholder Register
Planning			
3	Building the Blueprint	diagrams.net; work breakdown structuring and decomposition	Work Breakdown Structure
4	Developing the Schedule	Smartsheet; critical path method (CPM) and schedule logic	Gantt Chart
5	Visualizing the Budget	MS Excel; cost estimation, budgeting, and baseline visualization	Cost Baseline Diagram
6	Registering the Risks	MS Excel; qualitative risk identification and prioritization	Risk Register
7	Simulating the Uncertain	Google Colab, MS Excel; Monte Carlo simulation and quantitative risk analysis	Monte Carlo Risk Distribution Diagram
Execution			
8	Responding to Change	MS Word; integrated change control and impact assessment	Change Request
Control			
9	Adjusting the Timeline	Smartsheet; schedule analysis and reforecasting	Updated Gantt Chart
10	Realigning the Budget	MS Excel; cost performance analysis and variance visualization	Updated Cost Baseline Diagram
Closure			
11	Final Presentation	MS PowerPoint, MS Excel; earned value management (CPI, SPI), executive storytelling, and data visualization	Final Project Presentation

Across the challenge, teams were expected to:

- Define project objectives, scope, and success criteria through formal project charters,
- Identify and analyze stakeholders and their competing interests,
- Develop and maintain risk registers incorporating likelihood, impact, and mitigation strategies,
- Analyze simplified operational and financial data to evaluate strategic options,
- Design clear data visualizations to support recommendations, and
- Produce a final presentation that communicated both outcomes and rationale.

3.5 Mapping to PMBOK Process Groups and Knowledge Areas

The modules also mapped directly to standard PMBOK process groups and knowledge areas, supporting clear learning objectives and alignment with professional project management practice.

- **Modules 1–2 (Initiation and Planning):** Emphasize Project Integration, Scope, and Stakeholder Management through the development of project charters and stakeholder registers.
- **Modules 3–7 (Planning):** Address Project Scope, Schedule, Cost, and Risk Management through work breakdown structures, schedules, cost baselines, qualitative risk analysis, and quantitative risk modeling, culminating in Monte Carlo simulation.
- **Modules 8–10 (Executing and Monitoring & Controlling):** Apply Project Integration, Schedule, and Cost Management concepts through integrated change control, performance monitoring, reforecasting, and variance analysis.
- **Module 11 (Closing and Communications):** Reinforces Project Communications and Stakeholder Management by requiring teams to synthesize outcomes and present an executive-level project narrative.

This alignment with PMBOK process groups and knowledge areas supports clear learning objectives and makes it easy for chapters to map the simulation to educational outcomes, professional development units (PDUs), and foundational certification preparation, including concepts commonly assessed in project management credentials.

3.6 Tools, Platforms, and Accessibility

To reflect current professional practice while minimizing barriers to participation, the PM Case Challenge emphasized the use of widely available, industry-relevant tools. Participants were encouraged to select tools appropriate to their analytical approach and project context, rather than follow prescriptive workflows. Commonly used platforms included:

- Smartsheet for scheduling and timeline management,
- diagrams.net for work breakdown structures and visual mapping,
- Microsoft Word for formal documentation,
- Microsoft Excel for data analysis and visualization,
- Google Colab for Monte Carlo risk simulation and quantitative analysis, and
- AI-enabled assistants (e.g., PMI Infinity, ChatGPT, Claude, Gemini) for ideation and exploratory support.

Several platforms, including Smartsheet and PMI Infinity, were accessed via 30-day trial licenses aligned with the four-week duration of the challenge. This allowed participants to work with professional-grade tools throughout the simulation without incurring direct costs.

Tool selection was also guided by considerations of equity and accessibility. Wherever possible, the challenge relied on browser-based platforms and free tools. Core activities could be completed using no-cost or widely accessible tools (e.g., diagrams.net, Google Colab, and standard office productivity software), helping ensure that participation was not constrained

by access to paid or specialized software.

The simulation acknowledged the growing role of AI-enabled assistants in project work while setting clear expectations for their responsible use. Participants were encouraged to use AI tools for ideation and exploratory support, with the understanding that all AI-generated content must be critically evaluated, that final deliverables reflect participants' own judgment, and that attribution and plagiarism standards be observed.

By normalizing AI as a supportive but not authoritative resource, the challenge aimed to mirror contemporary professional practice while reinforcing expectations around verification, integrity, and accountability.

CHAPTER 4

Simulation Development Process

The development process focused on transforming the case materials into a modular, scalable simulation that could be delivered fully online with minimal overhead. The objective was to create an experience that resembled real project work: incomplete information, competing constraints, and the expectation that participants would produce professional artifacts under time pressure.

Four design goals guided development:

1. **Realistic**: grounded in a plausible business problem with authentic constraints and trade-offs.
2. **Self-directed**: requiring participants to choose approaches, tools, and assumptions rather than follow step-by-step instructions.
3. **Modular**: easy to maintain, update, and reuse across future cohorts or different industries.
4. **Lightweight infrastructure**: built using simple, low-cost, and widely available tools to minimize setup, maintenance, and barriers to replication.

4.1 Realism

The simulation narrative was adapted from a real operational scenario involving a production bottleneck and the planning work required to install a new paint booth. To reflect real project dynamics, the case introduced an unanticipated permitting obstacle that forced teams to reassess impacts to scope, schedule, and cost.

Information was intentionally delivered in a manner consistent with how project teams often receive it in practice: fragmented, role-dependent, and sometimes incomplete. Participants received scenario context in two primary formats:

- Web-based scenario pages outlining the current state of the project, and
- PDF memos written as stakeholder communications, each introducing new constraints or priorities (e.g., budget pressure, permitting delays, or demand considerations).

This structure required participants to interpret evolving inputs and reconcile competing stakeholder interests rather than respond to a single, static prompt.

4.2 Self-Directed Learning

The simulation emphasized self-directed learning by limiting prescriptive guidance and placing responsibility for judgment, analysis, and justification on participants. Teams determined which information was relevant, how it should be analyzed, and how recommendations should be defended.

A central design feature was the expectation that participants would independently learn and apply unfamiliar tools. While platforms such as Smartsheet, Google Colab, and diagrams.net were identified as appropriate, little formal instruction was provided. Teams were expected to:

- Select tools appropriate to their analytical approach,
- Learn those tools through self-guided exploration, and
- Apply them to produce professional-quality project artifacts.

This approach mirrors contemporary project environments, where junior professionals are often expected to rapidly onboard new tools and deliver results with limited direct supervision.

4.3 Modularity

The content was designed as a set of discrete modules that could be reused or replaced without rebuilding the entire experience. Materials were separated into:

- Narrative elements (scenario pages and stakeholder memos),
- Data inputs (tables, assumptions, and constraints), and
- Deliverables (artifact templates and submission expectations).

This modular structure enables straightforward adaptation in future iterations. Organizers can modify industry context, adjust difficulty, or introduce new risk events while preserving the overall learning flow and evaluation framework. It also supports partial deployment, such as running only the initiation and planning modules as a standalone workshop.

4.4 Lightweight Infrastructure

The simulation was delivered entirely through a public-facing website without user accounts, logins, or learning management systems, minimizing technical friction and administrative overhead. The platform architecture emphasized simplicity and accessibility:

- Built primarily using static web technologies (approximately 75% HTML, 15% CSS, and 10% JavaScript),
- Accessible through a standard web browser with no specialized software required,
- Developed using the Cursor code editor,
- Version-controlled via GitHub, and
- Hosted through Namecheap with a custom email address.

This lightweight architecture reduced costs, simplified maintenance, and made the simulation easy to replicate or adapt for future cohorts or partner organizations.

Together, these design and development choices produced a scalable simulation that emphasized judgment, trade-off analysis, and professional artifact creation under uncertainty - conditions closely aligned with real-world project environments.

CHAPTER 5

Execution Process: Simulation Delivery and Operations

This section describes how the simulation was delivered operationally, including participant recruitment, communication, submission management, judging, and post-challenge activities. Emphasis is placed on execution decisions that minimized technical overhead while maintaining a professional participant experience, as well as lessons learned that inform future iterations.

5.1 Participant Recruitment and Registration

Participant recruitment relied primarily on outreach to student groups and academic departments. The team used:

- Cold emails to student organizations and departmental mailing lists at multiple universities, and
- Direct outreach through existing relationships within PMI.

A Microsoft Forms registration link was used to collect participant names, email addresses, school affiliations, and basic demographic information.

Key insight: Relationship-based outreach was far more effective than cold email. Most unsolicited messages were not opened, suggesting that future cohorts should prioritize partner amplifiers (e.g., faculty, club leaders, or chapter contacts) over broad, untargeted email campaigns.

5.2 Communication and Participant Support

Communication with participants was centralized through:

- A dedicated email address (`contact@pmcasechallenge.com`) for all general communications,
- Mailchimp campaigns for key announcements (kickoff, phase releases, reminders, and closing messages), and
- A Discord server for office hours and community discussion.

Key insight: Real-time support channels were underutilized. Despite four weeks of office hours, attendance was negligible. Discord engagement was low, though a small number of substantive questions were raised. This suggests that an asynchronous support model (e.g., an FAQ page, short tool guides, and periodic clarification emails) may be more efficient than scheduled live sessions.

5.3 Submission Collection

For final deliverables, teams were asked to:

- Submit their final presentation (slides or video) as a PDF or link via email, and
- Bundle all supporting artifacts (e.g., charters, risk registers, analysis files, diagrams) into a single compressed (`.zip`) file and submit it via email.

This was an intentional design choice. Packaging deliverables into a clean, organized bundle reflects common workplace expectations and reinforces professional documentation habits.

Key insight: Email-based submission proved reliable and operationally simple. It reduced technical risk without introducing meaningful participant burden.

5.4 Judging Process

After submissions closed, the organizing team implemented a two-stage evaluation process designed to balance rigor and efficiency.

First, submissions were screened internally for completeness and adherence to submission requirements. Based on this review, the top ten teams were shortlisted using criteria related to analytical coherence, clarity of communication, technical quality, and overall slide design. Shortlisted submissions were compiled into a centralized Google Drive folder to streamline access for judges.

Final evaluation was conducted by a panel of PMI-LA practitioners and academic faculty using a standardized Google Forms judging instrument. Judges were asked to rank their top three teams and identify any number of honorable mentions, rather than score each submission against a granular point-based rubric. This rank-based approach was intentionally selected to reduce cognitive load and improve consistency across judges with varied professional backgrounds.

To support informed evaluation, judges were first provided with a briefing document that outlined the case challenge objectives, evaluation expectations, and high-level judging guidelines focused on communication quality, narrative coherence, analytical support, and real-world applicability. The briefing also included contextual scenario notes describing expected analytical outcomes such as the recommended option, contingency levels, and CPI/SPI ranges. These notes were presented as reference context rather than grading keys.

Judges were then given access to all shortlisted team submissions along with a Google Forms evaluation sheet where they ranked their selections and optionally provided qualitative feedback. This sequencing ensured a shared understanding of the case and evaluation criteria before final rankings were submitted.

Key insight: A streamlined, rank-based judging process minimized judge burden while producing clear and defensible outcomes. Pairing industry practitioners with academic faculty ensured balanced evaluation across practical feasibility, analytical rigor, and communication effectiveness.

The full finals judging instrument, including instructions, reference scenario notes, and evaluation guidelines, is provided in Appendix A.3.

5.5 Participation Certificates

Participation certificates were produced and distributed as follows:

- A standardized template was created in Microsoft Word and signed by the MASDS program director and the PMI-LA chapter president,
- Certificates were generated programmatically using a Python script and an Excel roster, reducing manual processing time by approximately three hours, and
- Certificates were distributed via batched emails rather than individually.

Key insight: Certificate administration becomes time-intensive without automation. Scripted generation workflows are strongly recommended for scalability and consistency. A reference implementation of the certificate automation workflow is provided in Appendix A.2.

5.6 Post-Challenge Survey

A post-challenge survey was administered to collect structured, exploratory feedback on participant experience, perceived skill development, and tool usage during the PM Case Challenge. It was designed to assess whether the simulation met its intended learning goals.

The survey employed a mixed-method design combining Likert-scale items and open-ended questions to capture both directional signals and contextual insight. Quantitative items as-

sessed perceived difficulty, clarity, structure, and adequacy of time and support, while paired pre- and post-challenge questions measured self-reported changes in confidence performing core project management tasks and readiness for interviews and real-world project work.

Conditional branching logic was used to collect targeted feedback on AI-enabled tools, including PMI Infinity. Participants who reported using PMI Infinity were asked about frequency of use, perceived usefulness, accuracy, and comparisons to general-purpose AI tools. This approach enabled exploratory insight into usage patterns without assuming uniform adoption or impact.

Survey distribution followed a two-step approach: an initial survey sent alongside participation certificates prior to award announcements, followed by email reminders and in-person prompts during the PMI-LA Professional Development Day award ceremony. Response rates were low (one initial response; six total after follow-ups), limiting generalizability and precluding formal statistical analysis. As such, findings are interpreted as descriptive and directional rather than inferential.

Key insight: Survey timing materially affects response rates. Embedding the survey at the point of highest participant engagement - such as immediately upon final submission or as a required closing step - would likely improve participation and data quality in future cohorts.

The full post-challenge survey instrument is provided in Appendix A.4.

5.7 Award Ceremony

Awards were presented during PMI-LA's Professional Development Day, a one-day conference featuring speaker sessions and networking opportunities. The ceremony included:

- A brief overview of the PM Case Challenge,
- Participation statistics (number of participants and schools),

- Announcement of the top three teams,
- Medal presentations, and
- Group photos with organizers.

Key insight: The award ceremony created a high-impact recognition moment. Group photos and public acknowledgment provided participants with tangible professional artifacts that could be shared on platforms such as LinkedIn, extending the impact of the challenge beyond the event itself.

Figure 5.1: Award Ceremony Group Photo

CHAPTER 6

Results

The PM Case Challenge produced several notable outcomes across participation scale, engagement patterns, and self-reported learning indicators. These results suggest that the simulation attracted broad interest, supported sustained team-based participation, and contributed to increased confidence and perceived readiness among participants who completed the challenge.

6.1 Participation Scale

The challenge attracted substantial interest across institutions. In total, 230 individuals registered, representing 10 universities. Of these, 13 teams submitted a final deliverable, corresponding to more than 50 participants who completed the full sequence of work from initiation through final presentation.

Teams included participants from business, engineering, and data science backgrounds, reflecting the cross-functional appeal of project management practice and the relevance of the case challenge across academic disciplines.

Figure 6.1 illustrates cumulative registrations over time. Signups increased sharply in the week leading up to the challenge start date, suggesting that urgency and peer visibility played a meaningful role in participant commitment. Although the registration link remained open after the challenge began to allow late entry, very few additional participants joined after kickoff.

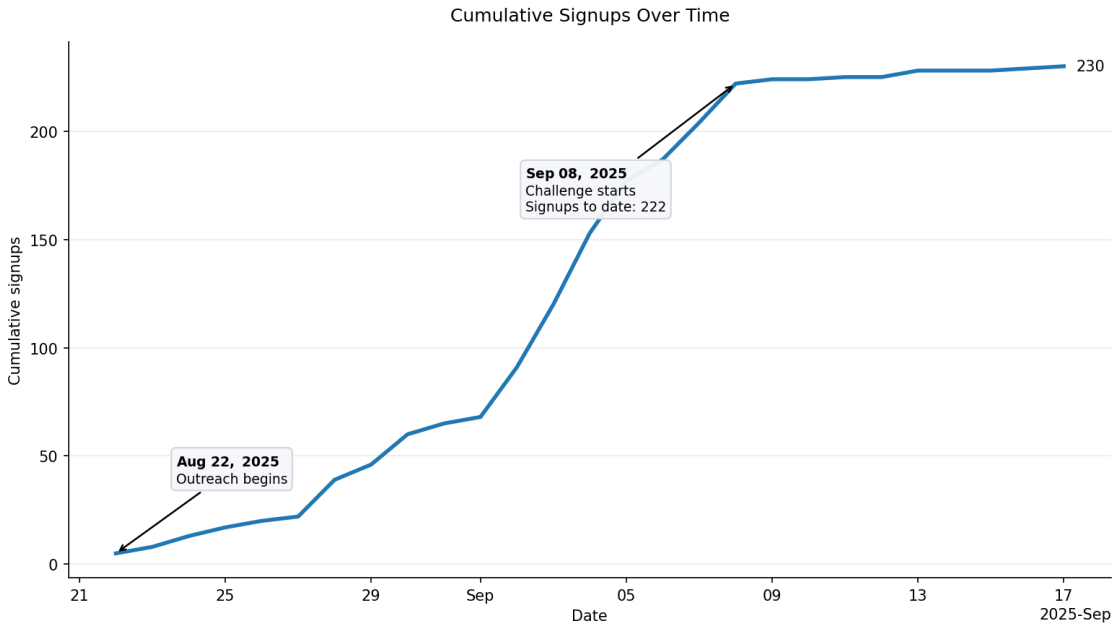

Figure 6.1: Cumulative Registrations Over Time

6.2 Engagement

Participant engagement was primarily asynchronous. Email served as the primary communication channel, while real-time support mechanisms such as office hours and Discord saw limited use. Most interaction occurred within teams as members collaborated to produce deliverables, rather than through centralized discussion forums.

Participants appeared comfortable relying on written guidance and internal team coordination, consistent with the intentionally self-directed design of the challenge. Low utilization of synchronous support channels therefore reflects alignment with the simulation's structure rather than disengagement.

6.3 Survey Results

A post-challenge survey was administered to assess participant perceptions of challenge design, learning outcomes, and career readiness. Although the response rate was limited ($n = 6$), the results provide useful directional insight into how participants experienced the simulation.

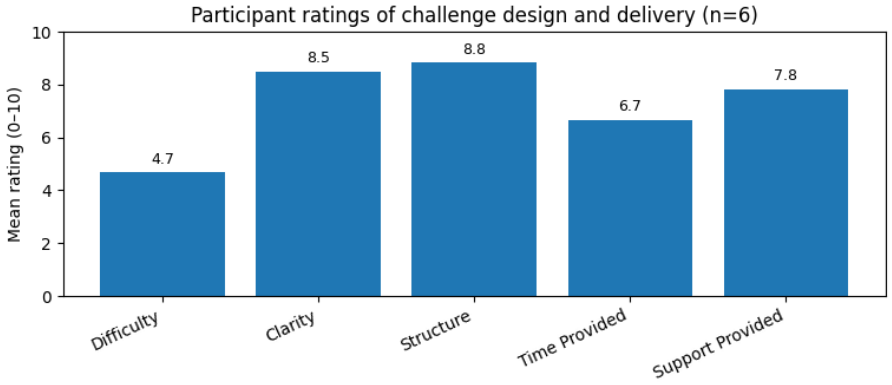

Figure 6.2: Participant Ratings of Challenge Design and Delivery Dimensions ($n = 6$)

Figure 6.2 summarizes participant ratings of key design and delivery dimensions. Respondents rated scenario clarity and overall structure highly, suggesting that the phased format and supporting materials effectively guided participants through the challenge. Ratings for time provided and support provided were also generally positive, indicating that participants felt adequately supported despite the intentionally self-directed design. In contrast, difficulty was rated in the moderate range, aligning with qualitative feedback that the challenge was accessible but could be made more complex in future iterations.

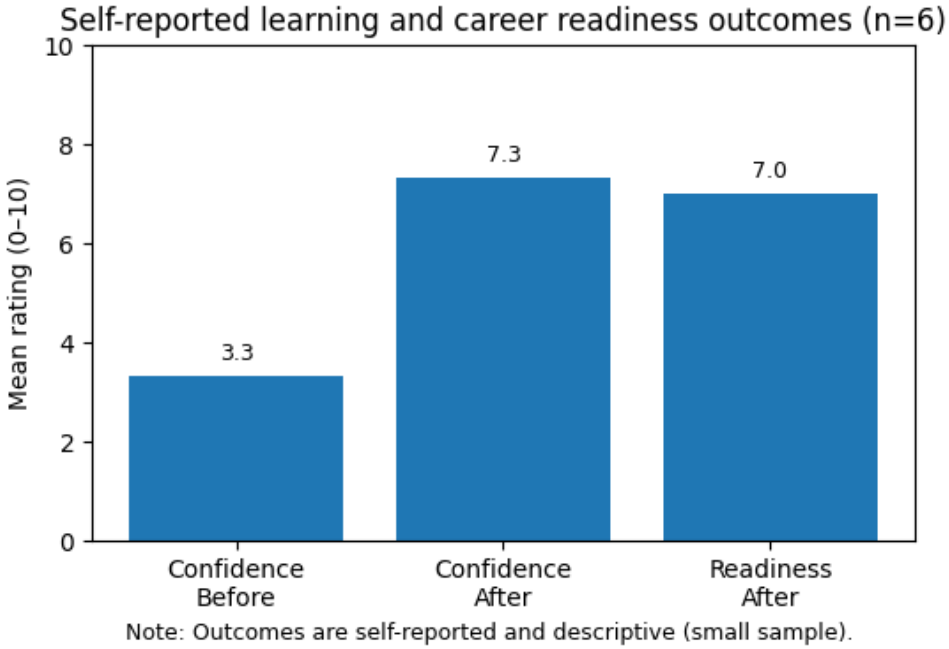

Figure 6.3: Self-Reported Learning and Career-Readiness Outcomes ($n = 6$)

Figure 6.3 presents self-reported learning and career-readiness outcomes. Participants reported substantially higher confidence in performing core project management tasks after completing the challenge compared to before. Respondents also indicated increased readiness for interviews and real project environments, suggesting that the experience contributed not only to skill development but also to professional self-efficacy.

Overall, these survey results suggest that the PM Case Challenge struck an effective balance between clarity and challenge while supporting meaningful learning gains. Although the findings are descriptive and should be interpreted cautiously given the small sample size and self-reported nature of the data, they are consistent with participant comments emphasizing the value of the realistic scenario and portfolio-ready deliverables.

CHAPTER 7

Total Resource Breakdown

The PM Case Challenge required minimal financial investment, with the majority of resources concentrated in organizer time. Effort was distributed unevenly across planning, execution, and close-out phases, with substantial front-loaded work during concept development and content creation.

7.1 Time Investment

Approximate time commitments are summarized below. Estimates reflect organizer effort and include some overlap across phases. Planning activities began in April 2025, marketing launched in late August, the challenge ran from September 8 to October 6, judging closed on October 14, and awards were presented on October 25 during PMI-LA's Professional Development Day (PDD).

Table 7.1: Approximate organizer time investment by activity

Category	**Description**	**Approx. Time**
Concept development	Initial ideation, scoping, and framing of the challenge	∼2 months (intermittent)
Content creation	Writing scenario materials, stakeholder memos, datasets, and instructions	∼3 months (intermittent)
Technical setup	Website build, iteration, testing, and deployment	∼2 months
Marketing and recruitment	Creating flyers; outreach to student groups and academic programs	∼30 hours over 4 weeks
Judge recruitment	Identifying, contacting, and confirming judges	∼4 hours over 3 weeks
Challenge administration	Monitoring communications and managing inquiries	∼8 hours over 4 weeks
Judging facilitation	Shortlisting submissions; coordinating reviews; aggregating results	∼10 hours over 2 weeks
Post-event survey	Designing, distributing, and monitoring survey responses	∼10 hours over 4 weeks
Certificate production	Designing templates, collecting signatures, generating certificates	∼5 hours
Awards logistics	Sourcing medals and preparing award materials	∼3 hours over 2 weeks
Award ceremony preparation	Preparing slides and coordinating ceremony logistics for PDD	∼8 hours over 2 weeks

In total, the challenge required an estimated **200–250 hours** of organizer time spread across approximately **six months**, with the majority concentrated in concept development and content creation. Once the challenge launched, ongoing weekly effort was relatively modest, suggesting that future iterations could be delivered with substantially lower marginal time cost if core materials are reused.

7.2 Financial Costs

Direct financial costs for the PM Case Challenge were minimal. No paid platforms or proprietary systems were required to design or deliver the simulation.

Table 7.2: Direct financial costs

Provider	**Item**	**Cost**
Cursor (Student Plan)	Code editor for building Case Challenge	$0
Namecheap	Web hosting and custom domain/email	∼$9
Mailchimp	Email communication service	∼$30
–	Medals / physical awards	∼$75
Total		**∼$114**

The financial footprint of the challenge was intentionally small. All core functionality was supported using free or low-cost tools, reinforcing that replication is constrained primarily by organizer time and coordination rather than funding.

CHAPTER 8

Conclusion and Future Improvements

The PM Case Challenge demonstrated a successful proof of concept for a low-cost, virtual project management simulation jointly led by a PMI chapter and a university. With 230 registrations and more than 50 participants completing the full sequence of deliverables, the challenge demonstrated clear demand for structured experiential learning opportunities in project management. Importantly, the combination of minimal financial cost and modular design suggests that the model is replicable with modest organizer time and partner coordination.

From an educational and professional development perspective, the challenge:

- Offered a realistic, end-to-end project scenario aligned with standard project management process groups.
- Encouraged participants to apply professional tools and produce industry-relevant artifacts.
- Provided a coherent project narrative and tangible work products that participants could leverage in interviews and career narratives.

At the same time, there are several concrete avenues for improvement in future iterations:

- **Enhanced social and networking components:** Incorporating more structured social events (virtual mixers, breakout rooms, or in-person meetups where feasible) would help participants form teams, build community, and deepen ties with PMI-LA members.
- **Increased challenge difficulty and optional advanced tracks:** Survey feedback characterized the overall difficulty level as moderate. Future versions could introduce optional advanced pathways, such as more detailed cost modeling, quantitative risk analysis, or dashboard development, to better accommodate participants seeking greater analytical depth.
- **Live finalist presentations and feedback:** Inviting finalist teams to present their recommendations live—either during PMI-LA's Professional Development Day or through a dedicated virtual event—would more closely simulate stakeholder presentations and strengthen the experiential realism of the challenge.

From an operational standpoint, a minimum viable version of the PM Case Challenge requires only a small set of core components: a modular scenario and stakeholder memos, standardized artifact templates and evaluation criteria, a single broadcast communication channel, a lightweight submission workflow, and a streamlined judging process. Once these elements are established, subsequent iterations can be delivered with substantially lower marginal effort.

In an environment where demand for project management skills continues to rise and traditional entry-level roles become more competitive, initiatives like the PM Case Challenge provide a practical way to build capability, confidence, and community. With modest resources, clear design, and strong collaboration between professional associations and universities, similar simulations can be scaled to support the next generation of project professionals.

CHAPTER A

Appendices

A.1 Public Simulation Access

The PM Case Challenge simulation referenced in this paper remains publicly accessible at

`www.pmcasechallenge.com`.

A.2 Automation Scripts

To reduce manual effort and improve scalability, the certificate generation process was automated using lightweight Python scripts.
The automation repository is publicly available at:

`https://github.com/yangong17/pm_case_challenge_automation`

The repository includes:

- Scripts for generating participant certificates from an Excel roster and a Word template, exporting personalized PDF certificates for batch distribution.
- Scripts for generating winner certificates using alternate templates.
- Basic logging and error handling to support batch processing.

These scripts are provided as a reference implementation. Future organizers may adapt the workflows to alternative platforms or certificate-generation tools as needed.

A.3 Finals Judging Instrument

This appendix documents the judging instrument used during the final evaluation phase of the PM Case Challenge. The form was designed to support holistic, practitioner-oriented assessment while minimizing evaluator burden and ensuring consistency across judges.

A.3.1 Judge Instructions

Judges were asked to:

- Review all shortlisted final presentations via a centralized submission folder,
- Select first-, second-, and third-place teams,
- Identify any number of honorable mentions, with no restriction on overlap across teams, and
- Submit final selections by the stated deadline.

A.3.2 Judging Guidelines

Judges were instructed to consider the following dimensions when ranking teams:

- Clarity and quality of communication,
- Narrative flow from problem definition to recommendation and impact,
- Use of data, analysis, and visual evidence,
- Professional judgment and real-world applicability, and
- Creativity and overall presentation polish.

A.3.3 Qualitative Feedback

Optional open-text fields were included to allow judges to provide team-specific feedback. These fields were intended to capture high-level strengths and improvement opportunities without requiring full written evaluations for every submission.

A.4 Post-Challenge Survey Instrument

This appendix documents the post-challenge survey instrument used to collect exploratory feedback on participant background, challenge experience, perceived skill development, career readiness, and tool usage. The survey employed a mixed-method design, combining Likert-scale items, categorical responses, and open-ended questions. Several constructs were measured using paired pre- and post-challenge items to capture perceived change over the course of the simulation.

The instrument also incorporated conditional branching logic to collect targeted feedback on the use of AI-enabled tools, including PMI Infinity, based on participant self-reported usage.

Participant Background and Time Commitment

- Participation type (student or early-career professional)
- Prior project management experience (categorical)
- Estimated total time spent on the challenge (hours, aggregated across team members)

Challenge Difficulty and Structure

- Perceived difficulty of the case challenge (Likert scale)
- Clarity of scenarios and instructions (Likert scale)
- Overall structure of the challenge (Likert scale)
- Adequacy of time provided to complete the challenge (Likert scale)
- Adequacy of participant support (e.g., office hours, Discord) (Likert scale)

Perceived Learning and Career Readiness

- Confidence in performing core project management tasks before and after the challenge (paired Likert items)

- Application of prior coursework or experience during the challenge (Likert scale)
- Perceived readiness for interviews and real-world project work after the challenge (Likert scale)

Use of AI-Enabled Tools (Conditional)

- Whether PMI Infinity was used during the challenge (Yes/No)
- Frequency of PMI Infinity usage (ordinal scale)
- Perceived usefulness of PMI Infinity as a project management support tool (Likert scale)
- Perceived usefulness of PMI Infinity relative to general-purpose AI tools (Likert scale)
- Perceived accuracy of PMI Infinity responses (Likert scale)
- Primary reason for not using PMI Infinity (for non-users; categorical)
- Open-ended feedback on potential improvements to PMI Infinity

Open-Ended Feedback

- Aspects of the challenge that worked well
- Aspects of the challenge that could be improved

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