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Systematizing research collaboration in higher education: A design science case using Microsoft Teams and Planner

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This design science case study introduces a practical infrastructure for managing academic research projects that can be easily replicated with Microsoft Teams, Planner, and OneDrive. Developing and deploying a structured digital environment addressed ongoing issues such as fragmented communication and inconsistent file management across thirteen simultaneous research projects. Researchers documented the use of uniform folder arrangements, planner boards that matched research processes, and standardized procedures to welcome new collaborators. Reflections reveal that the new system's benefits include reduced administrative overhead and increased transparency, resulting in improved coordination, particularly among early-career faculty members. The results offer practical guidance for institutions seeking to develop scalable research management systems and facilitate discussions on digital transformation within higher education.

Keywords: Microsoft Teams, academic collaboration, research project management, design science research, digital infrastructure, tenure-track faculty

Introduction

Faculty members face growing pressure from academic research demands as they must handle numerous concurrent projects while ensuring high-quality scholarly work. Academic research coordination remains fragmented, despite the existence of a wide range of digital tools. Traditional academic collaboration is often characterized by fragmented communication and disorganized document sharing, lacking structured progress tracking. The ad hoc model generates familiar issues, including version confusion and scattered documentation, leading to decreased clarity about project schedules and responsibilities. In contrast, industrial sectors have widely adopted integrated digital platforms that enhance project coordination and centralized oversight. This research applies design science principles to develop a digitally integrated collaboration system tailored for academic research, utilizing Microsoft Teams, Planner, and OneDrive.

Multi-project research endeavors require structured support, which early-career faculty members frequently cannot access through scalable systems. These issues create inefficiencies that reduce scholarly productivity, complicate tenure planning, and hinder the transfer of knowledge between projects. Despite institutional access to Microsoft Teams, its full potential for structured research coordination remains largely unrealized in academia. Through a design science methodology, this paper articulates Microsoft Teams as a cohesive platform for managing academic research activities. The study aims to:

- Develop and document a repeatable framework for organizing multiple research projects working together.

- Showcase critical implementation practices alongside templates and procedures for onboarding new members.
- Assess the model's advantages and constraints by analyzing narrative reflections and artifacts.
- Demonstrate how this model impacts early-career faculty who handle intricate research projects.

Significance and Audience

The findings of this research are particularly important for early-career faculty members and department chairs who serve as research mentors, as well as academic administrators seeking to enhance research productivity and transparency. This paper delivers a comprehensive implementation blueprint to support discussions about digital transformation in higher education and the practical application of research infrastructure. The model offers guidance for institutions seeking to establish research practices that are scalable, reproducible, and transparent across various academic disciplines.

Literature and Conceptual Foundations

While digital collaboration platforms have become widespread in multiple industries, higher education institutions still lag in implementing centralized academic project management systems. University research collaborations rely on email communication, informal shared folders, and institutional repositories that lack real-time coordination capabilities (Zhou et al., 2022). Despite broad access to collaboration platforms such as Microsoft Teams and Google Workspace, the systematic implementation of these platforms in research workflows remains minimal (Tan et al., 2022). Combining communication tools with task management systems and document sharing capabilities in a single platform enables structured and expandable collaborative work, which proves especially beneficial in research settings. Planner, persistent chat, and file co-authoring within Microsoft Teams collectively support visibility, task accountability, and real-time collaboration (Al-Hunaiyyan et al., 2024). Intentional setup turns these tools into a convenient and strategic source of research infrastructure.

Project Management Systems in Research Contexts

Research into project management frameworks within academic settings remains limited. Project management tools have become standard within industry, but academia continues to trail behind in establishing structured workflows and performance monitoring systems for research activities (Balestrini et al., 2015). Early-career faculty members face significant challenges when juggling multiple research projects, fulfilling their service duties, and managing co-authorship responsibilities. Recent research demonstrates that project management tools yield academic benefits through improved efficiency and clearer timelines, while also enhancing team communication (Santos et al., 2022). The implementation process tends to be improvised, and limited published research shows how institutions or people have customized existing software tools to meet academic requirements.

Design Science and Case-Based Implementation Studies

The research follows the design science research (DSR) paradigm that focuses on building artifacts and ensuring practical relevance through iterative refinement based on actual usage (Hevner et al., 2004). DSR is the best approach when researchers aim to solve a specific problem while assessing its practical application and broader relevance. Within information systems research, case-based design science research studies enable researchers to examine and document how socio-technical systems are implemented in organizational settings (Gregor & Hevner, 2013).

This case study contributes to design science research by detailing how institutional configurations of Microsoft Teams support the coordinated execution of academic projects. Templates, screenshots, and procedural guides help achieve practical replicability.

Research Design and Methodology

As Hevner et al. (2004) described, the study utilizes design science research (DSR) methodology to construct and evaluate artifacts that address organizational problems. DSR methodology excels in practice-oriented information systems research because it generates practical utility based on theoretical foundations. This study introduces a structured digital collaboration artifact built using Microsoft Teams, Planner, and OneDrive to support academic research coordination and collaboration.

The research employed a single-case embedded design to refine the collaboration infrastructure using Microsoft Teams iteratively. The evaluation approach of DSR, as presented by Gregor and Hevner (2013), demonstrates that exploration and reflection are vital when researchers create artifacts and assess their designs. The research activities included:

- The research began with an informal faculty interview-based needs assessment.
- The pilot implementation of the system occurred through iterative setups across several projects.
- Documentation of key configurations and usage patterns
- Thematic analysis of implementation challenges and outcomes

Key components of the artifact included standardized team templates, folder structures, task boards, onboarding protocols, and communication workflows. Subsequent sections present these as figures and examples. The research group analyzed includes one assistant professor and several collaborators who work on thirteen simultaneous academic research projects. Through its projects, the group explores multiple topics in information systems alongside instructional design themes and emerging technology areas. Dedicated Microsoft Teams channels were configured to support task tracking and document management for individual research projects. The research examines teamwork, project management methods, and the use of technology.

Data Collection

Data were collected through the following means:

- Configuration processes were systematically documented to enable evaluation and potential replication.
- Screenshots and descriptive notes of platform features
- Internal communications and team artifacts (with consent)
- The study received additional input from co-authors through informal interviews and personal reflections.

Artifacts function as both research subjects and data presentation methods. In alignment with design science principles, the artifact was evaluated based on its usability, utility, and relevance to academic research. Although not formally coded, team member feedback contributes to narrative reflections that examine the implementation results. The multimodal approach provides detailed descriptions and practical insights, enabling researchers to evaluate how the infrastructure fosters transparency and accountability in research, as well as its scalability.

System Design and Implementation

This section outlines the infrastructure configuration process to support scalable academic research management using Microsoft Teams and its extensions. The system's architecture is designed to enhance visibility and minimize administrative hurdles while delivering a scalable model suitable for replication across diverse research groups and organizations. Table 1 summarizes the components that collectively form the artifacts evaluated in this study and were developed iteratively in response to user needs and collaboration requirements.

Table 1. Summary of Artifact Components Created in Microsoft Teams Environment

Component	Description	Purpose
Teams Channel Structure	Dedicated channels for each research project	Centralized collaboration space with chat, files, and meetings
Planner Board	Custom task board with labeled stages (Ideas → Published)	Workflow tracking across the research lifecycle
Folder Structure	Standardized naming (e.g., 00_Topic Analysis, 01_Archive)	Ensures version control, transparency, and easy access
Document Templates	IRB forms, data collection guides, manuscript templates	Accelerate onboarding and ensure consistent documentation
Onboarding Checklist	Step-by-step process for new collaborators	Reduces setup time and improves adoption consistency
Meeting Notes / Status Logs	Channel-based or stored in "06_Communications" folder	Tracks decisions, progress, and accountability

Microsoft Teams Configuration Overview

Dedicated channels were provisioned for each research initiative to support collaboration, communication, and file sharing. The standardization of naming conventions provided consistency and simplified navigation (e.g., "R13—Project Title"). Each channel was configured with essential tools, including Planner boards, shared OneDrive document libraries, and a Wiki-based project.

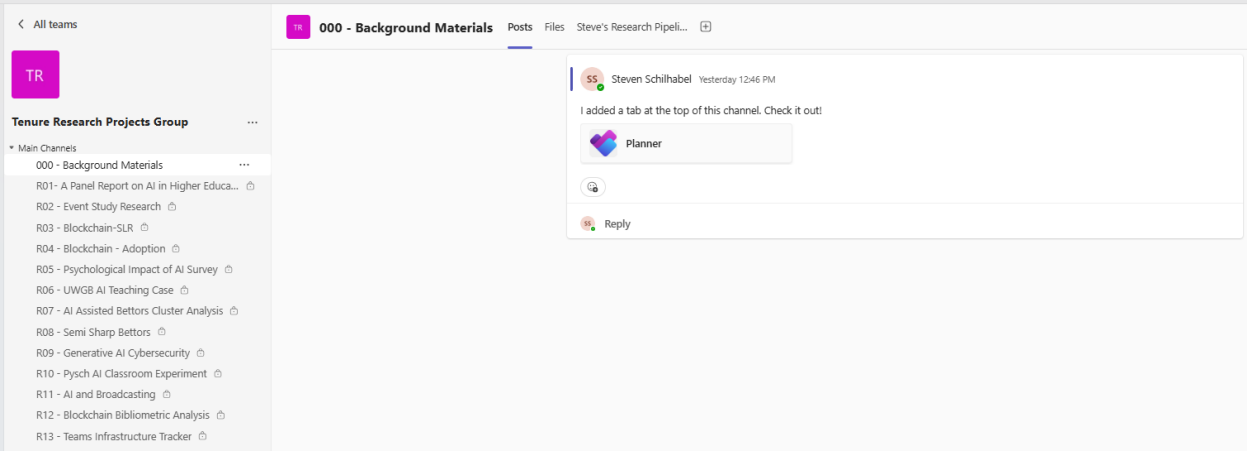

Figure 1 - The Microsoft Teams workspace layout shows standardized project channels and pinned tools.

The structure created a system where centralized supervision coexisted with decentralized project teams, allowing collaborators to pursue specific assignments while keeping track of the entire research pipeline.

Folder Architecture and File Management

The deployment of a standardized folder template within every channel's file tab guaranteed consistent document organization throughout all projects. Each template included subfolders, such as "2025_04_Draft_v2_SAS.docx." The team initially established specific document naming conventions, such as "2025_04_Draft_v2_SAS.docx," to prevent version confusion. The file system supported transparency, simplifying the onboarding process for new team members while maintaining easy access to current key documents.

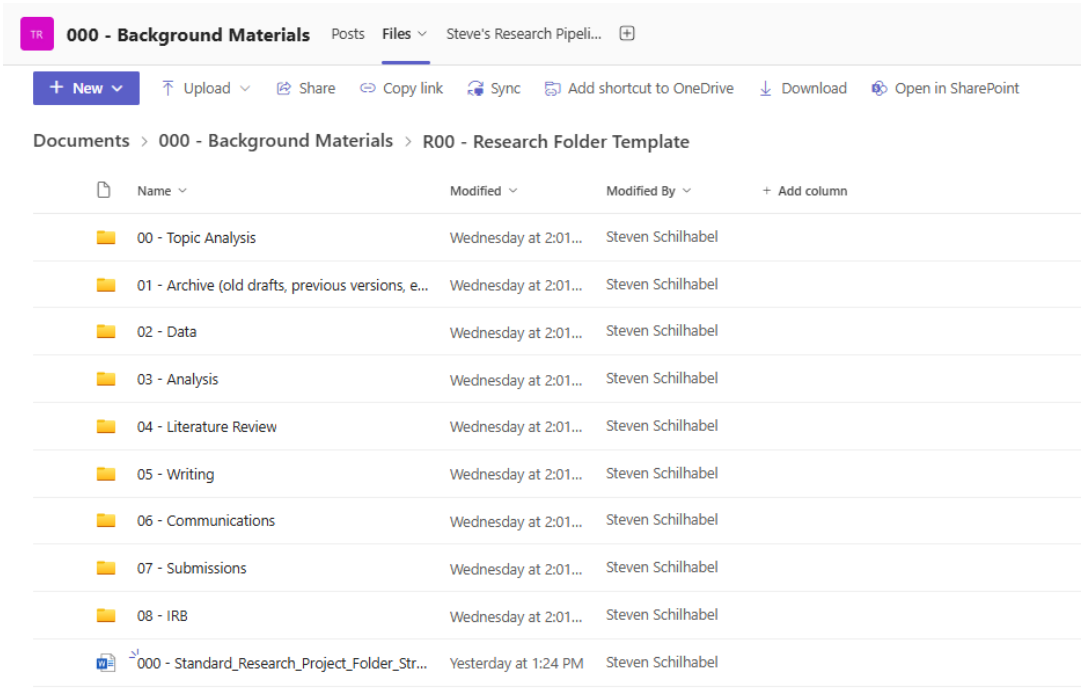

Figure 2. A folder template screenshot from a project's file tab shows standardized categories.

Planner Boards and Task Visibility

Each project channel included an integrated Planner board, customized to reflect the stages of academic research: The integrated Planner board displayed the research stages as "Ideas," "In Progress," "Ready for Review," "Submitted," and finally "Published." Team members received tasks that included deadline dates, links to documents, and notes about progress. The system employed reusable labels, such as "IRB," "Literature Review," and "Analysis," to assist with filtering functions.

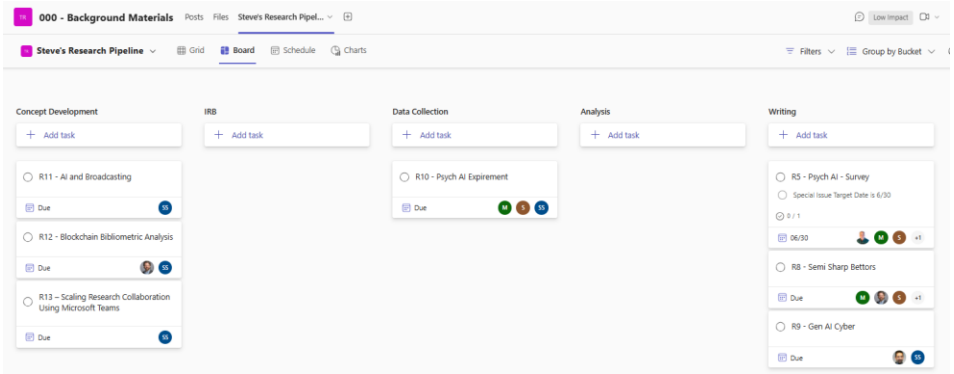

Figure 3. Example Planner board showing task distribution and research stage workflow.

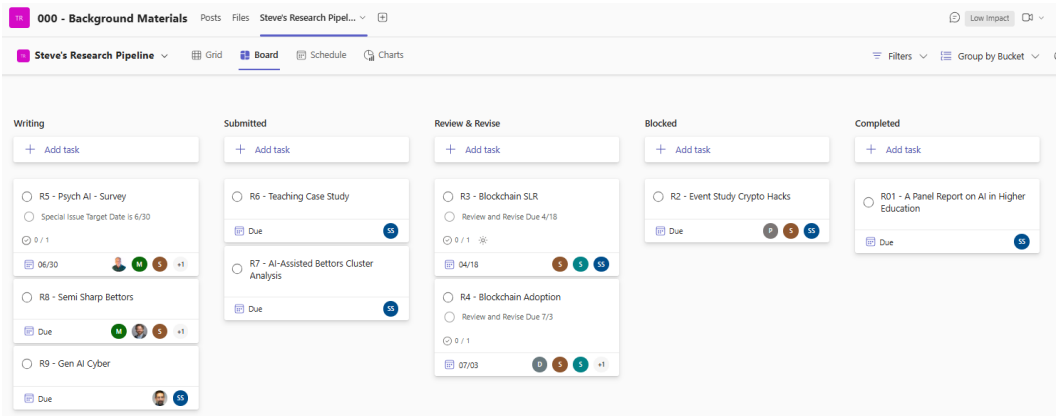

Figure 4 - Example Planner board showing task distribution and research stage workflow (continued).

The structure created transparent views of task ownership and allowed easy tracking of project status and upcoming deadlines, which helped resolve typical problems encountered in multi-author academic projects.

Onboarding and Access Protocols

A structured onboarding process helps new collaborators easily integrate into the research workflow. New team members receive an introduction to the Microsoft Teams workspace, project directory structure, and centralized Planner board during their orientation, which is facilitated through a SharePoint-based wiki that serves as their primary resource for orientation. New collaborators joining a project team obtain a welcome message with links to the shared Teams workspace, the Planner board, and their specific SharePoint page. The resource carries a "Wiki" label yet functions as a meticulously structured SharePoint page designed to clearly and organize onboarding information. Each new collaborator receives a Wiki review during their onboarding session or walkthrough. It contains three main sections:

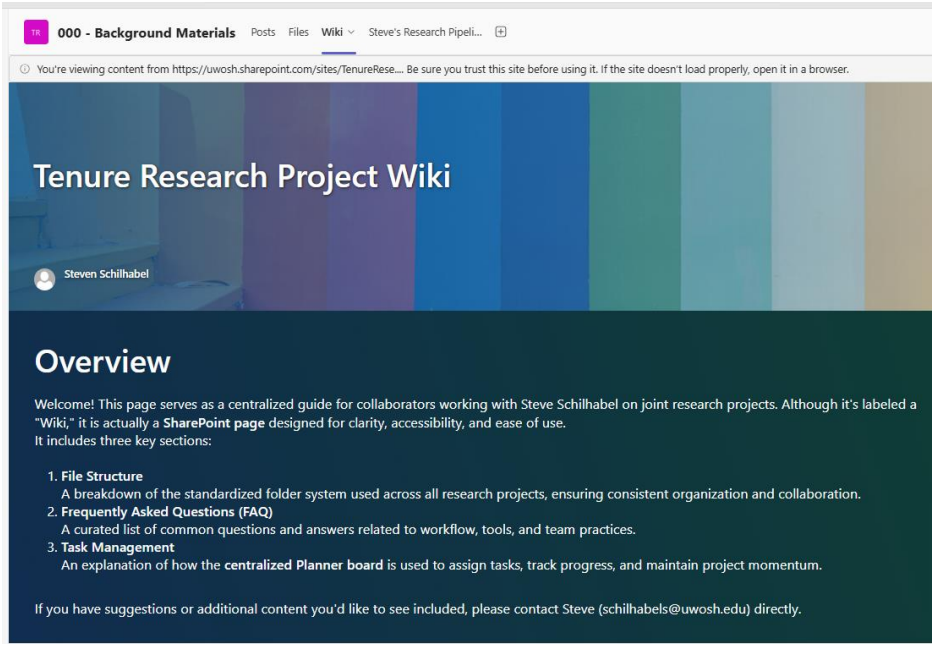

Figure 5 . Wiki

1. File Structure Overview

This section introduces the unified folder architecture applied to all projects numbered 00 to 08, outlining storage protocols for planning materials, datasets, manuscripts, communications records, and submission documents. This section demonstrates best practices for file organization and version control using SharePoint's built-in version history.

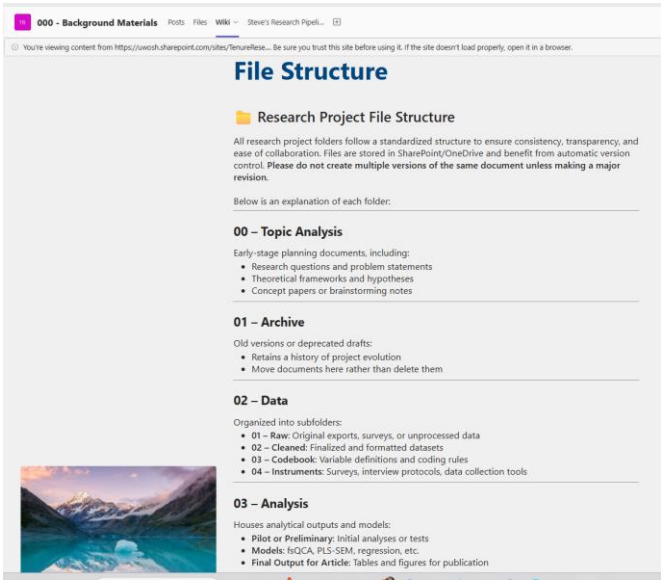

Figure 6. Wiki File Structure Section

2. Task Management with Planner

The centralized Planner board monitors task status, distributes responsibilities, and records progress for all research projects. It utilizes a Kanban-style layout and sends task assignment or modification notifications via email or Microsoft To-Do.

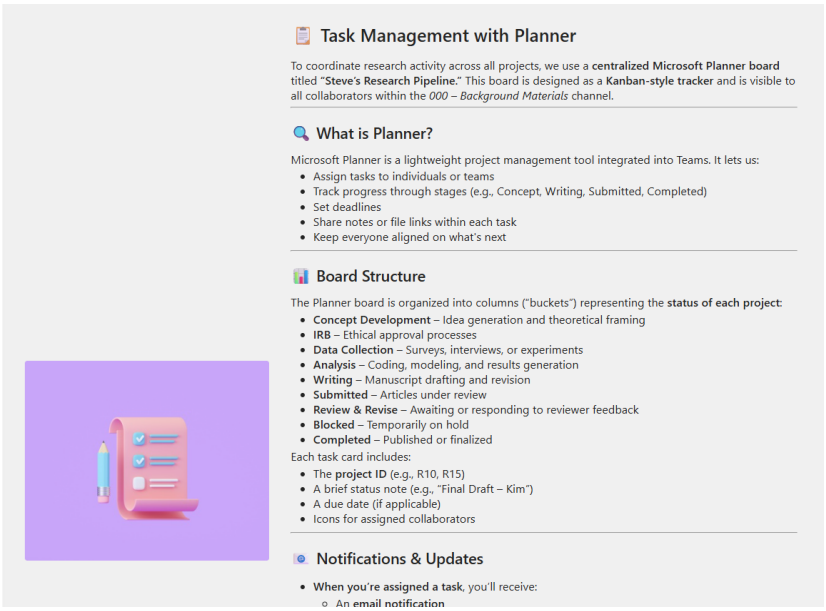

Figure 7. Wiki Task Management Section

3. Frequently Asked Questions (FAQ)

The FAQ provides straightforward responses to common questions about file access procedures, communication within Teams, task role clarity, and project update processes. This section enables swift issue resolution and prevents collaborators from encountering typical obstacles.

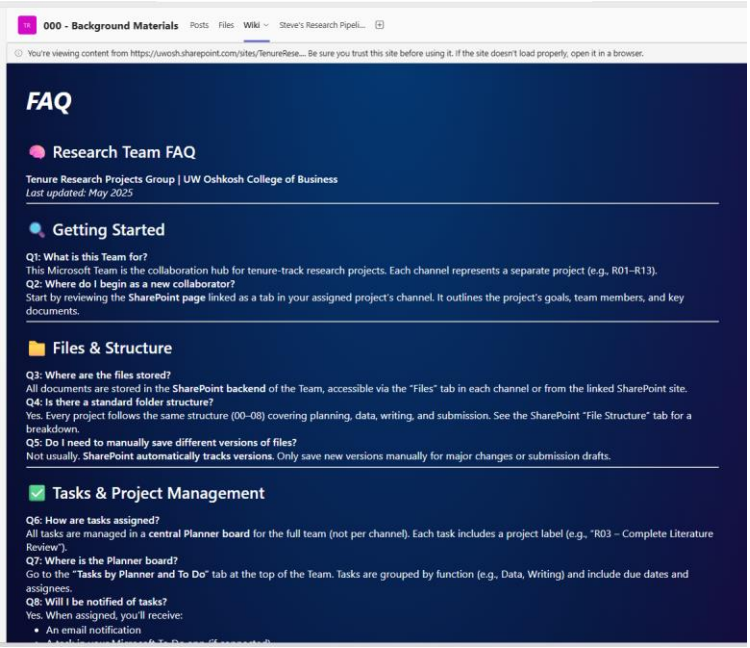

Figure 8. Wiki FAQs

Users can always access the SharePoint Wiki because it is pinned as a tab within the 000 – Background Materials channel. Members should regularly check the material to submit recommendations for improvements or further details. The structured onboarding system helps new collaborators learn more quickly while reinforcing team expectations and ensuring continuous engagement throughout all phases of research. It also enables individuals without prior knowledge of Microsoft Teams or Planner to participate confidently in academic research collaborations.

Outcomes and Reflections

This section presents the outcomes of integrating Microsoft Teams-based infrastructure throughout a multi-project academic research pipeline. The reflections are based on usage observations, anecdotal feedback, and thematic analysis of project coordination methods.

Observed Benefits

The implementation of systems brought about multiple observable and perceived advantages.

- Reduced Administrative Overhead: The centralized task tracking system and uniform file structures significantly reduced the time required for document retrieval and checking project progress, while also clarifying team responsibilities.
- Improved Visibility and Accountability: The Planner tool provided real-time insights into project progress, simplifying task assignments and deadline tracking while keeping momentum steady across simultaneous initiatives.

- Enhanced Collaboration Quality: Continuous chat capabilities, structured threaded discussions, and real-time document access enabled better team coordination even when participants belonged to different institutions or operated on varying work schedules.
- Structured Onboarding: New collaborators achieved fast and seamless integration through the onboarding checklist and standardized architecture, creating an atmosphere of mutual understanding and coordinated effort.
- Pipeline Awareness: The system exposed each stage of the research pipeline, enabling faculty members to match their projects to tenure requirements and institutional objectives.

Limitations and Challenges

Despite the observed advantages, several limitations and challenges emerged:

- **Learning Curve:** Some collaborators, particularly those less familiar with Microsoft Teams or Planner, required initial support and encouragement to engage fully with the system.
- **Tool Overlap Confusion:** Faculty already using tools like Google Docs, Trello, or Slack often experience friction when migrating to a new system, especially when personal preferences conflict with team norms.
- **Limited Mobile Optimization:** Although Teams has a mobile app, some functionality (e.g., full Planner board views or folder navigation) was less efficient on mobile devices, limiting flexibility for on-the-go updates.
- **Incomplete Adoption:** Not all team members consistently used the Planner board or maintained document versioning discipline, requiring gentle but ongoing reinforcement of workflows.

These limitations reflect both technical and behavioral factors, underscoring the importance of iterative support, clear role modeling, and institutional endorsement.

Evaluation and Lessons Learned

Faculty who participated in using the artifact reported greater visibility into project timelines and deadlines. “Having everything in one place helped us meet deadlines,” and “Planner kept us accountable, especially when we were juggling several projects.” However, some initial users noted confusion around folder structure and advocated for introductory videos for future deployments.

Effectiveness Metrics

Within 9 months, 12 research projects were successfully managed through the system. The Planner board allowed for tracking of research progress from proposal to submission.

Design Limitations and Iterative Improvements

While the artifact centralized research activities, it did not include automation of reminder alerts or version control beyond OneDrive defaults. A second version included auto-tagging and better naming conventions. Additionally, the differing adoption rates among senior faculty who were not familiar with Teams presented a challenge. Future versions will include in-app tutorials and role-based views to facilitate uptake.

Implications and Recommendations

The discussion highlights the broader impact of established infrastructure on academic stakeholders and delivers actionable advice for organizations aiming to replicate and institutionalize these frameworks.

Implications for Early-Career Faculty

The proposed system will benefit early-career researchers who strategically manage teaching and service alongside research duties. The model delivers essential structural support for multiple projects.

- Tenure preparation improves through better documentation of research productivity and project timelines.
- The system improves collaboration management, allowing users to track co-author contributions and project deadlines consistently.
- Users benefit from reduced mental load through centralized access to task assignments, status updates, and essential documents.

This system enables early-career faculty members to transition from managing projects reactively to adopting a proactive strategy that supports promotion and tenure goals.

Institutional Implications

Structured collaboration systems benefit institutions aiming to boost research productivity and replication capabilities. The introduction of a unified platform, such as Microsoft Teams, within departmental or college settings:

- The platform enables faculty advisors or chairs to monitor project progress continuously in real time, which supports mentorship and oversight functions.
- The platform provides compliance and reporting support through detailed documentation of IRB protocols, along with publication stages and submission history.
- Templates and workspaces provide successful practices to research teams through cross-project learning.

The model requires only a limited additional investment, as most institutions already have Microsoft 365 licenses, and it achieves high return potential in meeting digital transformation objectives.

Guidelines for Adoption

Departments or faculty members looking to implement this system should follow these recommendations based on the case findings.

1. Start Small and Iterate: Implement 1–2 projects to develop folder structures and naming conventions, optimizing task workflows, before expanding the system.
2. Establish Norms Early: Ensure team expectations for communication channels, file versioning, and task updates are established from the beginning.
3. Create and Reuse Templates: Streamline your workflow by creating standard procedures for Teams channel configuration, folder organization, and new user welcome messages.
4. Provide Light Training: Early adoption rates improve when team members complete a brief video walkthrough or guided tour, which helps eliminate friction.
5. Integrate with Existing Tools: Connect Teams to familiar tools faculty members use when integration is possible (such as Outlook calendars and citation managers).
6. Evaluate Periodically: Ask team members for their input and monitor how the Planner tool is being used to confirm it fulfills its intended function.

Academic teams that combine flexible implementation strategies with disciplined methods significantly enhance their coordination efforts and transparency, while also boosting their scholarly output.

Conclusion

This study presented a design science case of implementing Microsoft Teams, Planner, and OneDrive as an integrated infrastructure for managing academic research collaboration. Through a detailed walkthrough of system configuration, folder architecture, task management, and onboarding protocols, the paper demonstrated how a structured digital environment can address common challenges in academic coordination, particularly for faculty managing multiple simultaneous projects.

Key contributions of this work include:

- A replicable blueprint for academic research infrastructure using tools already available at most institutions;
- Evidence of improved administrative efficiency, collaboration quality, and research transparency;
- A practical case study highlighting how design science can inform socio-technical systems development in higher education.

By centering the implementation on the lived experiences of a real research team, this study adds depth to the growing literature on digital transformation in academia.

Next Steps and Future Research

The research provided a design science example illustrating how Microsoft Teams, Planner, and OneDrive can be utilized to support academic research collaboration management. The study provided a comprehensive guide to system setup and folder structuring, alongside task flow management and new-user integration processes, which demonstrated that an organized digital workspace could effectively address academic coordination issues for professors with multiple concurrent projects.

Key contributions of this work include:

- The study provides a repeatable model to build an academic research infrastructure with existing institutional tools.
- The research provides documented proof of enhanced administrative efficiency, better collaboration quality, and increased transparency in research processes.
- This practical case study demonstrates the application of design science principles to develop socio-technical systems within higher education environments.

This research adds new depth to the digital transformation literature in academia by using real research team experiences as its core focus for implementation.

Reflective Statement

As part of the system design and implementation process, generative AI tools such as ChatGPT were utilized to assist in structuring folder hierarchies, drafting onboarding templates, and refining communication workflows. While not central to the empirical contribution of the study, these tools supported the rapid prototyping of infrastructure components and illustrate the emerging potential of AI-assisted academic design processes.

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Appendices

The appendices were generated during implementation with the assistance of ChatGPT, utilizing the content developed in MS Teams, and were used as is. As such, the AI-generated content is being shown below as is.

Appendix A: Standard Research Project Folder Structure

Each research project includes a dedicated Microsoft Planner board embedded within its Teams channel. The Planner is structured around the stages of academic research and uses a consistent set of labels and assignments to manage progress. Below is the standard template configuration.

Planner Columns (Buckets):

- Ideas – Unvetted concepts, exploratory opportunities
- In Progress – Active work items assigned to team members
- Ready for Review – Completed tasks pending feedback
- Submitted – Tasks related to submission to journals or conferences
- Published – Completed outputs with citations or links

Common Task Labels:

- IRB
- Literature Review
- Data Collection
- Analysis
- Writing
- Submission Prep
- Presentation

Task Card Template:

- Each task card includes:
- Title (e.g., “Draft Literature Review – Intro Section”)
- Assigned team member(s)
- Due date
- Linked files or folders

Notes and checklists (e.g., sub-tasks or co-author dependencies)
This configuration ensures visibility, accountability, and efficient task tracking across multiple projects.

Appendix B: Folder Naming Conventions

Each research project managed within Microsoft Teams adheres to a consistent folder structure, promoting transparency, version control, and efficient collaboration. Below is the standard layout and description of each folder used within project channels.

00 – Topic Analysis
Contains early-stage planning documents, including research questions, theoretical frameworks, hypotheses, and concept papers.

01 – Archive
Stores deprecated or previous versions of documents, allowing a historical record of the project's evolution.

02 – Data
Organized into subfolders:

- Raw: Original survey results, exports, or unprocessed data
- Cleaned: Prepared and formatted datasets
- Codebook: Definitions and coding rules
- Survey or Other Instruments: Final survey forms, interview protocols, and other relevant documents.

03 – Analysis
Stores analytical outputs and models:

- Pilot or Preliminary: Early-stage or trial analyses
- Models: Saved files for fsQCA, PLS-SEM, or statistical modeling
- Final Output for Article: Cleaned tables, figures, and statistical outputs

04 – Literature Review
Organized into:

- Citations and References: EndNote, Zotero, or manually collected citations
- Readings: PDFs of relevant articles
- Synthesis Notes: Annotated literature notes and thematic summaries

05 – Writing
Contains manuscript development files:

- Main Manuscript: Current working drafts with tracked changes
- Tables and Figures: Images, charts, and formatted data visuals

06 – Communications
Tracks collaboration and status updates:

- Emails: PDF or text copies of relevant correspondence
- Meeting Notes: Notes from co-author or advisor meetings
- Status Updates: Logs or reports of ongoing project milestones

07 – Submissions -
Houses submitted versions, cover letters, journal guidelines, and submission confirmations.

08 – IRB - Includes IRB approval letters, submission forms, and ethics-related documents.

Appendix C: Onboarding Guide for Collaborators

New collaborators are provided a structured onboarding protocol to ensure consistent understanding of the digital environment and expectations.

Welcome Message Template:
Welcome to the [Project Name] Team! This shared space contains all files, task boards, and collaboration tools for our research. Please begin by reviewing the folders, joining the Planner board, and confirming access to shared documents.

Onboarding Checklist:

- Accept the Microsoft Teams invite
- Open the Teams channel and review pinned tabs
- Review folder structure under "Files"
- Join and review the Planner board
- Read team norms in the "Wiki" or "Notes" tab
- Confirm access to shared OneDrive files
- Schedule or attend orientation meeting (if applicable)

Resources Shared:

- Short video walkthrough (~3 min) of the Teams environment
- Link to FAQs or team-specific onboarding norms
- Contact info for the team lead or admin for troubleshooting

This guide streamlines the integration of new members and promotes a consistent experience across projects and collaborators.