Advanced Project Tracker: Integrating Automation and Analytics for Effective Project Management

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Abstract

This project modernized a SharePoint-based Project Tracker tool to support improved task coordination and performance management within a water utility consulting context. Automation using Power Automate reduced delays in task status updates, while analytics through Power BI allowed data-driven insights into team workload and project distribution. A scoring model (PTS) was developed to measure task complexity and individual workload. Results showed increased reporting speed, improved balance in assignments, and reduced manual errors. The upgraded tool now enables faster decisions and better resource management.

Introduction

PRASA, Puerto Rico's public water utility, faced operational challenges addressed by a consulting firm through this project. The existing SharePoint-based Project Tracker lacked automation and analytics, limiting performance visibility and workload balance. This project upgraded the tool by adding automated workflows and real-time metrics, improving task tracking, reducing manual input, and enhancing management oversight.

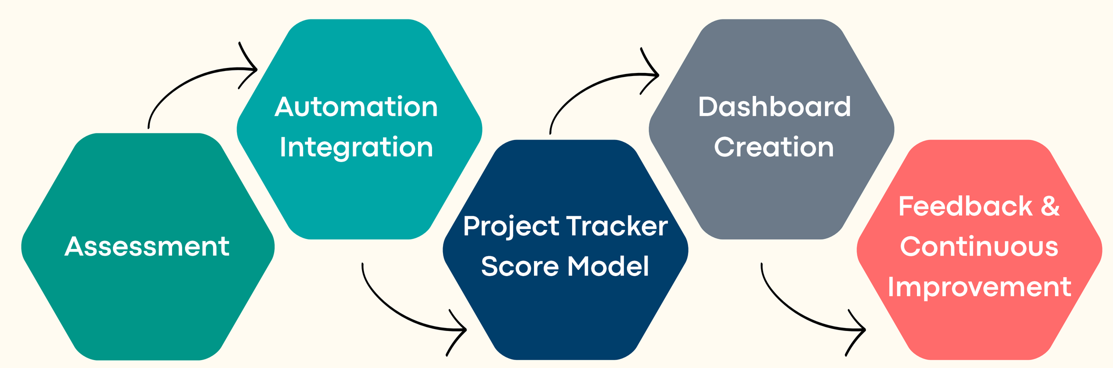
Literature Review

Automation and analytics were identified as essential components of modern project management systems. Automation reduces repetitive administrative tasks, minimizes errors, and improves productivity [1, 2]. Automated notifications and archiving processes allow project managers to maintain oversight while eliminating the need for manual updates.

Analytics enable informed decision-making, particularly for workload balancing and performance tracking [3]. Integration with tools like Power Automate and Power BI facilitates seamless workflow automation and real-time dashboards [4]. These technologies empower project managers to assess progress, detect workload imbalances, and optimize resources proactively.

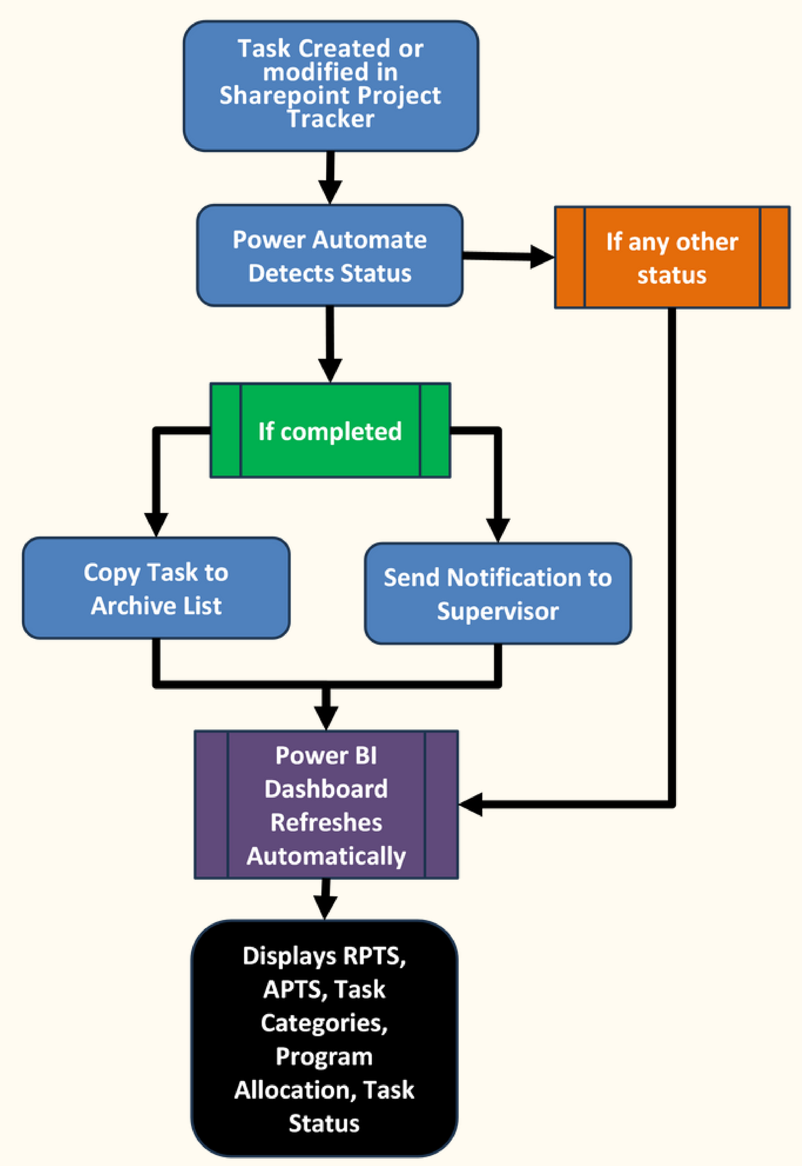
Overall, combining automation and analytics significantly improves risk management and transparency in project environments [5].

Methodology



Phase 1: Assessment
Six team members were interviewed using structured questions and open discussions to identify workflow issues, task management gaps, and resource tracking bottlenecks

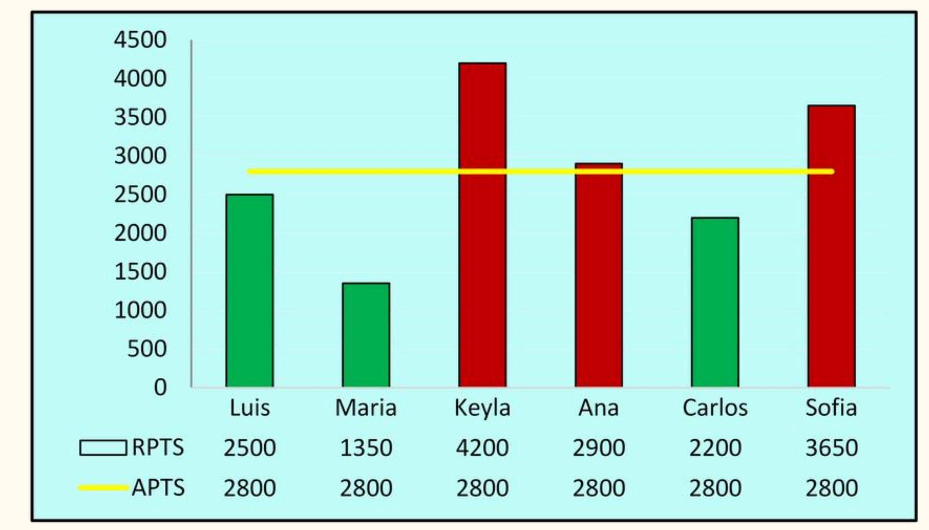
Phase 2: Automation Integration
Task status updates and notifications were automated using Power Automate. Integration challenges with SharePoint permissions and triggers were resolved through IT support and PowerShell configurations.



Phase 3: Project Tracker Score Model Development
A robust scoring mechanism was needed to fairly assess task complexity and workload distribution.

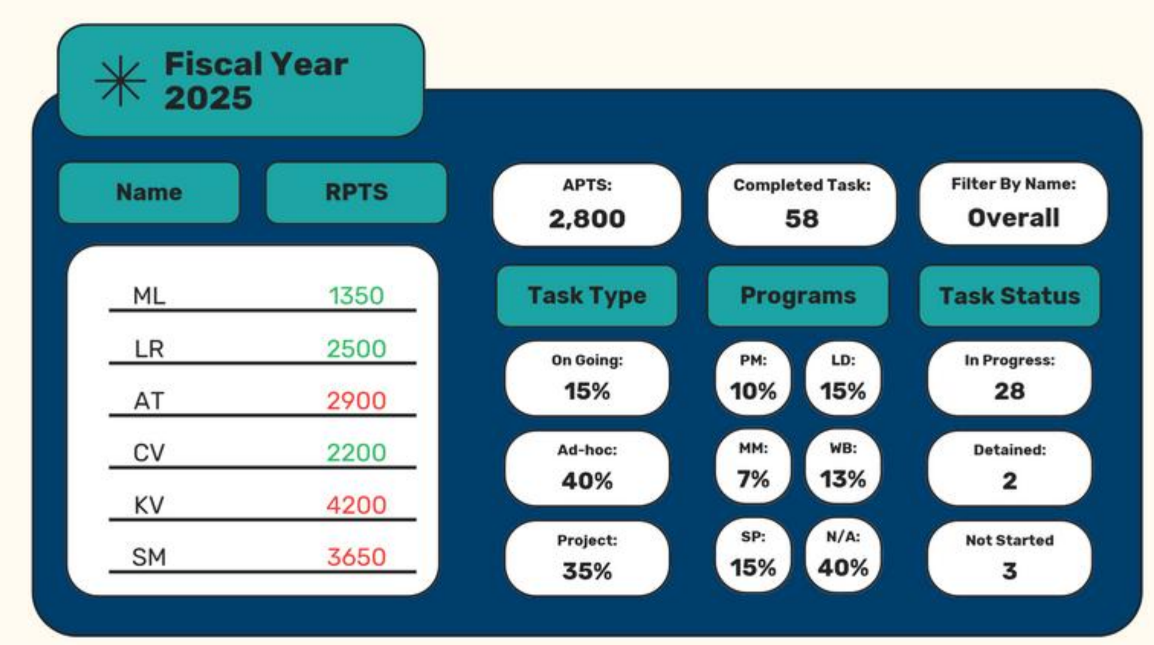
- PTS = Priority Weight × Effort Weight
- RPTS = $\sum PTSi$
- APTS = $(\sum RPTS) \div n$

In these equations, PTSi is the score of each task assigned to an employee, and n is the number of employees.



Real Project Tracker Score vs Average Project Tracker Score (Before Implementation)

Phase 4: Dashboard Creation and Visualization
A Power BI dashboard was created to visualize project data, including task totals, RPTS vs. APTS, task categories, program allocation, and status breakdown. It was built by linking SharePoint data, setting refresh intervals, and validating visuals through testing.

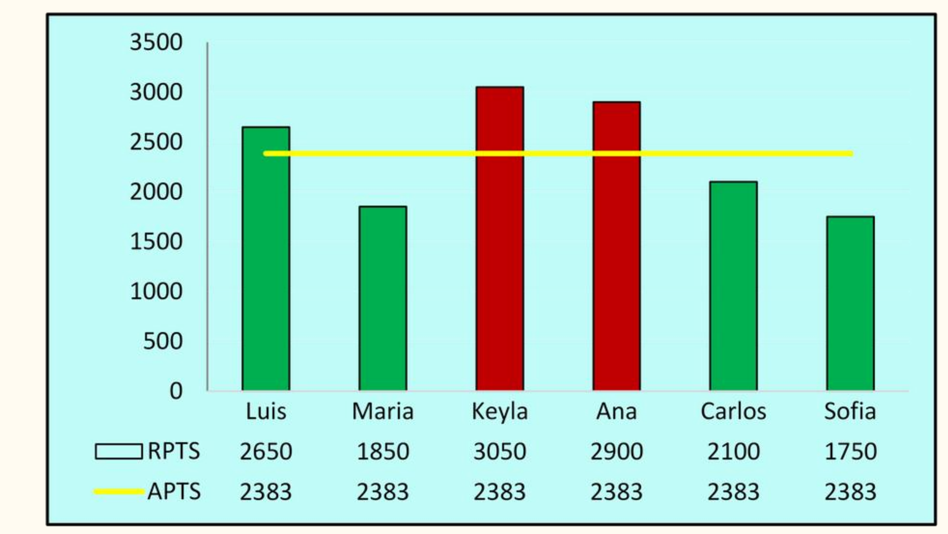


Phase 5: Feedback and Continuous Improvement
Weekly feedback was gathered through surveys, interviews, and open forums to assess usability. Input was documented, prioritized, and used to guide iterative improvements to workflows, notifications, and interface design.

Results

Metric	Before	After	Percentage Difference
Avg. Update Time	10–14 days	5 days	↓58%
Updates within 24hrs	~25%	85%	-
Weekly Compliance	61%	87%	↑43%
Workload Variance (Standard Deviation)	925	504	↓45%
Manual Errors	7/weekly	5/weekly	↓~30%

- Managers now track task load via RPTS vs. APTS
- Task categories and status visualized in Power BI
- Data automatically archived by year for traceability



Real Project Tracker Score vs Average Project Tracker Score (After Implementation)

Conclusion

This project demonstrated that integrating automation and analytics into a project tracking system can significantly improve operational performance and management oversight. By streamlining task tracking and enabling real-time performance metrics through tools like Power Automate and Power BI, the upgraded Project Tracker empowered the organization to balance workloads, improve transparency, and react proactively to team needs. The structured methodology and stakeholder involvement ensured sustainable adoption and ongoing improvement. This model can serve as a replicable framework for similar consulting or engineering management environments seeking to modernize task management systems.

References

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[5] Gartner. (2023). How Analytics Tools Are Revolutionizing Project Management. https://www.gartner.com/en