Case Study Executive Summary:

Shining a Light on Overtime: How the MTA Transformed Spending Transparency

Organization Overview:

The MTA is North America's largest transportation network, serving a population of 15.3 million people in the greater New York City area. The network comprises the nation's largest bus fleet and more subway and commuter rail cars than all other U.S. transit systems combined. With more than 70,000 employees, most of whom are hourly, the MTA is one of the largest employers in the NYC metro area.

The Situation

The Metropolitan Transportation Authority (MTA) faced heightened scrutiny due to excessive overtime spending, prompting a demand for transparency and governance enhancements from New York State's Governor. The MTA leadership recognized the need and engaged in an initiative to provide near-real-time visibility into overtime spending, leveraging data mining to uncover the underlying drivers.

Challenges included handling large amounts of data, getting finance departments to work together, and respecting legacy processes. The solution was to create a central data warehouse on Azure (golden source"), automate reporting, and enable drill-down capabilities for individual-level analysis.

Why I was able to step in

I was uniquely positioned to step in as project lead, boasting a mix of skills and experiences in process-oriented problem-solving, cross-functional collaboration, and project management. I had also proven myself in other projects, where I worked with complex data structures and collaborated with agency leaders and data teams.

Project Approach

I used a structured approach that combined Business Transformation Management Methodology (BTM2) and the iterative model implementation of the Software Development Life Cycle (SDLC). By leveraging these proven methodologies, we addressed the previously mentioned challenges by providing visibility into the process and allowing for feedback. It also helped get buy-in and create a scalable solution. Governance was ensured through a two-tiered structure comprising a Steering Committee and a Working Group.

Execution involved careful planning, developing the solution in stages, and thorough testing. In the end, we launched a dynamic BI dashboard.

Value and Benefit

The solution gave MTA leaders quicker access to useful insights, improved data accuracy, and helped ensure policies were followed. By working together and using structured methods, the project showed how strategic consulting can drive organizational change and achieve measurable results.

> *…Whether the work was this kind of nitty-gritty detailed work or high-level coordination and presentation, Don handled it smoothly.*
>
> Andrew Kuziemko, Vice President - Strategic Initiatives at New York

Detailed Case Study

Shining a Light on Overtime: How the MTA Transformed Spending Transparency

The Situation

In 2019, spurred by news reports about the exceedingly high amount of overtime certain employees of the Metropolitan Transportation Authority (MTA) were making every year, the Governor of New York State, who has executive oversight of the MTA, demanded answers from the Chairman as to how this could be the case and what additional governance enhancements could be put into place. Not helping this matter was that in 2018, overtime spending at the authority ballooned by $122 million, some 3,800 hours in extra shifts.

MTA Leadership knew that the operating decisions driving overtime were solid individually. However, when aggregated, the public perception was one of waste, fraud, and abuse. Leadership understood the need for operational decision-makers, agency heads, and the board to have increased near-real-time visibility into overtime spending. A successful engagement would provide a holistic view and empower the users to drill into the data to uncover the drivers.

Data was available; however, easily accessing it in a manner that shows the totality was not. The MTA has six operating agencies: New York City Transit, Long Island Rail Road, Metro-North Railroad, MTA Bus Company, Bridges & Tunnels, and the Staten Island Railroad. Another significant entity within the authority is MTA Construction & Development, which is responsible for developing and building the capital infrastructure projects needed to renew and enhance the systems. Despite being merged into a single public benefit entity decades ago, each has retained independence regarding back-office systems and chart of account structures.

Digital Vision

Our charge was straightforward: leverage data mining to provide greater transparency and insight into the drivers of overtime.

Organization Overview

The MTA is North America's largest transportation network, serving a population of 15.3 million people in the greater New York City area. The network comprises the nation’s largest bus fleet and more subway and commuter rail cars than all other U.S. transit systems combined. With more than 70,000 employees, most of whom are hourly, the MTA is one of the largest employers in the NYC metro area.

The Challenges and Opportunities

Public service is a public trust. To ensure public confidence in the integrity of any agency, the agency must adhere to certain fundamental principles. One of the most charged ones is being a diligent steward of the public’s money. The appearance of excessive overtime meant that our work to implement a tracking and diagnostic tool would be heavily scrutinized.

Additionally, several other significant challenges needed to be navigated.

1. Managing the sheer volume of data
2. Building cohesion and trust between the different finance departments, who were not used to working with each other, let alone sharing financial details
3. Respecting other legacy processes – do not break others' work
4. Structuring the tech stack such that the reporting structure was automated, able to handle the volume and velocity of data (scalable), and repeatable
5. Designing a report that provided the ability to drill down to the individual employee level by day

Data Tsunami

Each of the MTA agencies generates a ton of data daily. The usual administrative, financial, and workforce records and data coming from the field, such as equipment status, run time, and utilization, are all stored within legacy databases. When tasked with providing near real-time reporting on overtime hours and shift reporting, it was apparent that producing a uniform, dynamic report with different account structures wasn't sustainable or scalable.

Upon evaluating potential solutions, the team acknowledged that a data warehouse was the most efficient way to provide oversight. Additionally, this platform set the foundation for future predictive analytics work. Under this paradigm, an enterprise-wide database was established on an Azure server to house the refined data—the "golden source." Data pipelines were established between the identified operational and newly spun-up databases. Support tables to align the differing hierarchies and a chart of accounts were also designed and loaded onto the Azure server.

In addition to the SQL script that would perform the required ETL (extract, transform, and load), anomaly and error detection scripts were included to have sound governance.

Managing Trust

This project was about providing the needed information in a timely and easily digestible format. This, in turn, would allow the MTA to be consistently transparent and thus build trust.

What is not readily seen by those outside of the MTA is that the solution provided a vehicle that enhanced compliance with overtime policies by providing leadership access to information and services on demand. The legacy process pushed corrective actions out to weeks, if not months. Enhancing the delivery of this information plays a role in managing overall costs by providing more visibility into the use of overtime, spotting problems, influencing the planning of discretionary work, and ultimately adjusting overtime policies.

Why I was able to step in

My familiarity with navigating the MTA data structure, my work with agency leads and data teams to recognize opportunities, and my engineering grit to make, implement, and sustain changes allowed me to step into this project readily. I also leveraged the following mix of skills and experiences.

Skills:

- Process-oriented problem-solving
- Clear communications with partners at all levels
- Cross-functional collaboration
- Project management methodologies
- Ability to leverage people, processes, technology, and data to achieve desired results

Experiences:

- Leading cross-functional teams
- Managing multiple priorities and urgent deadlines
- Driving projects from vision to actual sustainable change

The Stakeholders

The project team had to manage two primary stakeholders: the different agency CFOs and the operational heads of the various departments within the agencies.

CFOs

- The CFOs had direct representation on the Steering Committee
- Their teams are responsible for the forecasting and tracking of overtime spend
- Each has its own "as-is" process and system architecture

Operational Heads

- Did not have direct representation on the Steering Committee
- Vested interest was in obtaining accurate near real-time information on both spending and hours worked

The Actions

My Roles and Responsibilities

As the project lead, my role was to ensure that the work was done efficiently and satisfactorily, from initiation to close. Within the Strategic Initiatives team, everyone provides hands-on contributions to the project. Thus, project management is not a full-time team role. My other role was to give the finance perspective on what data measures and slices should be produced; thus, I worked closely with the IT members of the team to ensure the proper data model construct.

Key Specific Responsibilities:

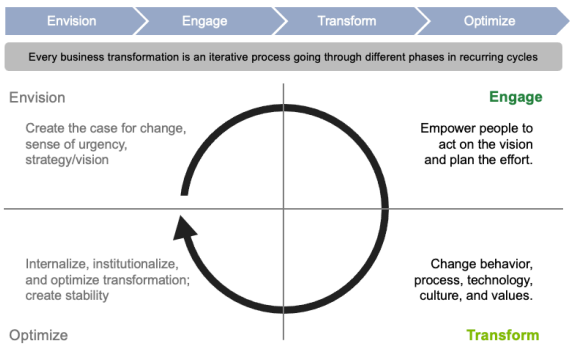
1. Ensure consistent communication with the Steering Committee and stakeholders
2. Led the visioning workshop where the team and internal stakeholders created a clear vision of the deliverables (scope and timeline) and secured the buy-in of all parties
3. Structured effective feedback loops so the right path could be readily found when faced with unrealized challenges and unforeseen risks
4. Prototyped the solution in Power BI to refine functionality before deploying WebFOCUS
5. Constructed the initial supporting lookup tables for the thousands of different codes so the data could be interpreted correctly
6. Developed and maintained the project plan
7. Responded and provided resolutions to issues during the engagement

The Scope

The project team determined that the best approach was to provide a single "golden source" of overtime-related data and make the information available within a fully dynamic BI-driven dashboard. This would provide near real-time information and allow authorized users to drill into the results.

Transformation Methodology

Given the impetus for this project and by whom, the case for change and sense of urgency were established before the team's involvement. Our charge was to ***determine the how, engage with the appropriate parties to act on the vision, and bring it to reality***. Everything that needed to happen after the initial launch was deemed out of scope – institutionalization (behavior change), optimization, and stability.



The main steps in our process were:

1. Setup the Steering Committee and define the charge
2. Design the automation
3. Build the automation
4. Test and deploy the solution
5. Transition solution to the BAU support team

Business Transformation Management Methodology + Software Development Life Cycle

The combination of the Business Transformation Management Methodology (BTM^2) and iterative model of the Software Development Life Cycle (SDLC) is a proven and well-documented framework. Being so made it easy to get buy-in from the supporting players because of what needed to be done and how it would be documented.

Business Transformation Management Methodology (BTM^2)

I chose the Business Transformation Management Methodology (BTM^2) as the overarching governance framework for the engagement. SAP originally developed this framework when they realized many companies struggled to implement their ERP software products fully. Since then, it has been continuously refined by the broader transformation community and used to implement large and small transformational projects successfully. This record of success is because BTM^2 is a holistic and integrative methodology that can address difficulties in all kinds of projects. Use cases include, but are not limited to:

- Operational Excellence – Improving operational processes and workflows to increase productivity and reduce costs
- Data-driven Decision Making – Leveraging data analytics to identify areas of underperformance and implementing strategies to enhance returns across the organization
- Risk Management – Identifying and mitigating risks associated with business transformation initiatives to ensure smooth execution

The figure below shows the detailed framework, but one should note that what boxes are utilized is determined by the task at hand and how well-defined the project is. What one is targeting with the BTM^2 construct is that each of the nine main boxes is adequately covered.

As the project lead, I was involved in all the main project steps. The figure below highlights those BTM2 areas where I was intimately engaged.

Business Transformation Management Methodology (BTM^2)

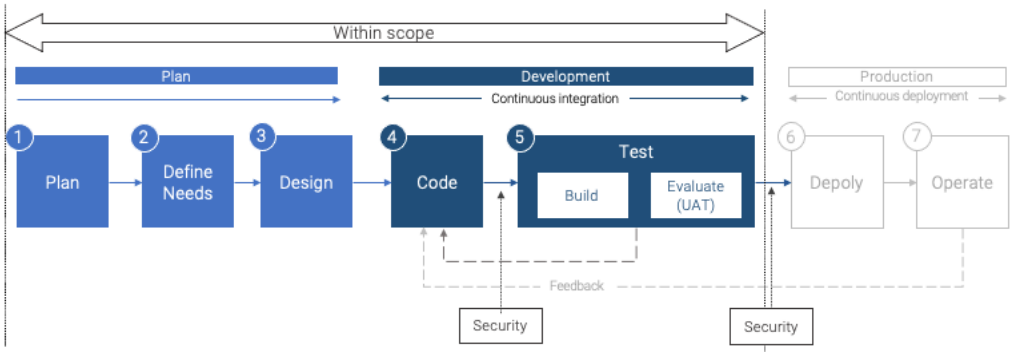
Steps I was responsible for
Other undertaken steps
Identified by NYS Governor

Meta Management	Orchestration of individual discipline: Guidelines, leadership, culture, values, and communication							
Direction			**Enablement**					
Strategy Management	Value Management	Risk Management	Business Process Management	Transformational IT Management	Organizational Change Management	Competence and Training Management	Project Management
As-is data collection	Baseline analysis	360° strategic risk assessment	Determine scope of analysis	Business and IT capability assessment	Set-up and governance	Competence strategy	Project planning and governance
Analysis of needs and maturity level	Value estimation	Risk identification	From template to bespoke inventory	To-be analysis	Stakeholder management	Training need analysis	Project integration management
Design business vision	Detailed business case	Risk evaluation	Identify improvements/ add attributed	Gap analysis	Change agent network	As-is analysis	Project scope management
Design business model	Agree ownership for realization	Define risk response plan	Map selected processes	IT roadmap plan	Communication management	Gap analysis	Project time and cost management
Integrated transformation plan	Plan benefit realization	Execute risk mitigation plan	Plan process implementation	Solution architecture design	Performance management – project team	Curriculum development	Project quality management
Business case	Execute on-going benefit health checks	Risk monitoring and reporting	Implement process	IT deployment plan	Performance management - business	Training preparation	Project human resource management
Organizational model	Review and evaluate results	Risk management review	Evaluate process	IT operations and service optimization	Change readiness assessment	Training	Project procurement management
Align with risk management	Establish potentials for further benefits	Risk management improvement	Establish improvement process	IT lifecycle management	Change monitoring	Evaluation and improvement	Project reporting

Software Development Life Cycle (SDLC)

By leveraging this framework, we ensured that the right people were involved in the right activities at the right times. Using the iterative model of this framework made the most sense given that:

- Risks were identified at an early stage
- It was a complex project which could be decomposed into workstreams
- Enhancements could be quickly recognized and implemented
- The MTA follows the agile methodology as an organization
- The framework makes it easy to measure progress



Execution

Project Management + Organizational Change

Being one of the first times an assembly of agency representatives would spearhead an MTA-wide initiative, the project governance and reporting structure needed to be robust and highly functional. Given the project's matrixed nature, if the structure faltered in securing high-level buy-in, critical in ensuring the cooperation of finance subject matter experts (SMEs), the likelihood of producing a trusted solution would be fifty-fifty at best. I advised leadership to structure governance in two layers to mitigate this risk. The top layer would be the Steering Committee, comprised of the MTA CFO and the respective agency CFOs or their designate. They were given three primary responsibilities:

- Provide overall initiative governance
- Facilitate the navigation of Finance and IT-related complexities
- Ensure that the initiative is aligned with the MTA's objective

The second tier was a Working Group comprised of an executive representative from 1) each agency's CFO office, 2) MTA-IT, 3) Strategic Initiatives (internal consulting), and 4) the members of the core engagement team. From a governance point, each of this group was charged with:

- Provide a governance check and approve any scope modification
- Advocating for the project in their respective agency/function
- Foster positive and timely communication with senior leadership

My Responsibilities:

- Project Planning and Governance – Established a structured framework to manage risks and ensure adherence to timelines and budgets
- Project Scope Management – Defined, controlled, and monitored the boundaries of the engagement to ensure that it stays within the predefined objectives, deliverables, and constraints
- Time and Cost Management – Established mechanisms to effectively plan, monitor, and

control both the schedule and financial aspects of the engagement

- Project Reporting – Regular collection, analysis, and dissemination of relevant engagement data and insights to stakeholders to provide transparency and track progress
- Stakeholder Management – Engagement with the stakeholders to ensure their needs and expectations are understood and met throughout the process
- Communication Management – Implemented a structured approach to effectively convey relevant information about the engagement to stakeholders, fostering understanding, alignment, and engagement

Solution Development

Step 1: Plan

I brought together the core team and key stakeholders to brainstorm the challenges we faced to satisfy the mandate. The result was a problem statement document that provided senior leadership with an answer for the Governor about the timing for a solution and, in general, how end users could leverage it to provide enhanced overtime usage oversight.

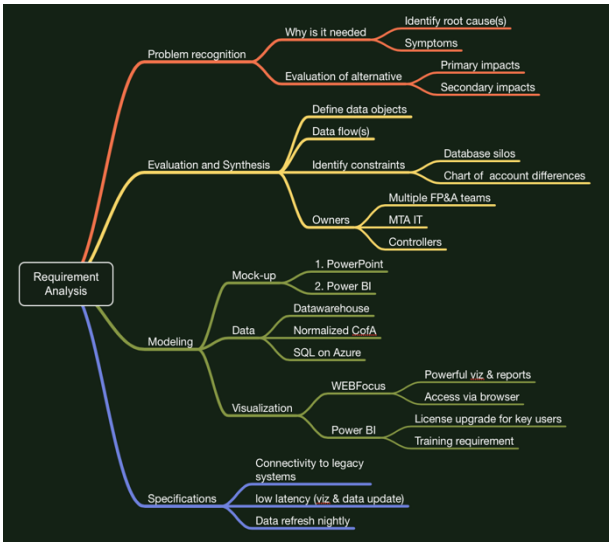
Internally, the work resulted in a basic project plan (scope, deadlines, and deliverables). It was confirmed that the project was feasible. It would likely require a fair amount of coding and data modeling, but it would be a good use case for the modern Azure cloud-based technology stack currently being implemented with Microsoft's help.

My Responsibilities:

- As-Is Data Collection – Gathered information and metrics about the current state processes, systems, and operations

Step 2: Define Needs

We undertook a requirement analysis to gather specifics from both data suppliers and downstream users to understand the detailed complexities. Adding to the requirements, we estimated how difficult it would be to integrate, scale, and secure a solution. This allowed me to convey the project's feasibility and level of complexity to the Working Group.



In addition, we were able to frame the technology requirements:

- Necessary software functionality
- Data flow
- System behavior (working of the system)
- Discover any existing design constraints
- Required supporting tables

Armed with the above insights, the core team determined the best mix of programming languages, frameworks, and platforms to meet the stated needs, goals, and constraints. This allowed us to develop the Software Requirement Specification (SRS) and provide senior leadership with the commitment (resources) needed to achieve the mandate successfully.

Step 3: Design - Solution & Project Management

Plan the Development

Once we had achieved buy-in on the SRS, I built the detailed project plan by:

- Dividing the project into manageable tasks, milestones, or deliverables
- Determining how to allocate resources
- Selecting the best measure(s) of progress

Design

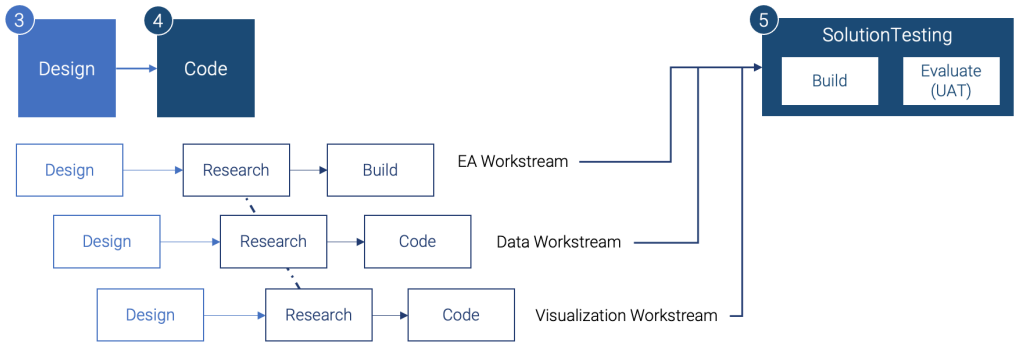
At the same time, I worked with both the data and visualization teams to construct the initial wireframes, the first step in translating the stakeholders' ideas into a tangible form. As we stepped through the design phase, we naturally transitioned from diagrams into mock-ups, which allowed the core team to identify data design assumption errors and other hidden challenges.

My Responsibilities:

- Map Selection Process – Identified and prioritized opportunities that align with the engagement's goals and objectives
- Mock-up Construction – Built the initial mock-ups in PowerPoint and later Microsoft Power BI

Step 4: Iteratively Build the Solution

When consensus on the design was reached, each of the individual workstreams took possession of their book of work and began executing against their objectives. This meant the workstreams started using the software packages (SQL and WebFOCUS) and technologies (Azure Server) to turn the final mock-up into a working application. In addition to creating the reports, work was started on building the data pipes between systems and the data model (data structure, supporting tables, etc.).



Step 5: Solution Testing

Build Test

Although minimal testing was conducted within each of the workstreams, we still needed to ensure that the final product would work as intended and meet specific latency and system connectivity requirements. Because we were dealing with seven different agencies, Metro-North Railroad volunteered to pilot the full solution (Build and UAT testing) since their CFO believed they had the best handle on the situation.

My Responsibilities:

- User Acceptance Test (UAT) - Designed the UAT script

User Acceptance Testing (UAT)

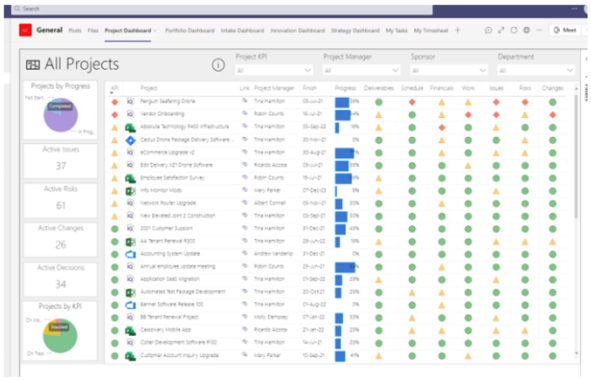
One of the most important phases within the engagement was UAT because it allowed us to demonstrate that the required functions were operating in a way that suited the MTA's real-world use.

Executing the Test Script

The testers were a selected mix of Metro-North FP&A and Finance personnel. They followed the UAT script of expected outcomes and then recorded what happened when they attempted to execute different tasks, such as:

- Logging into the account (security)
- Numerical results when applying filters (historical data used for validation)
- Drill down into report detail
- Latency times
- Exporting of report tables

In addition, random exploratory tests were conducted; during each test, any identified bugs or proposed enhancements were logged into the issue tracker along with the steps that produced them.



Bug Fixing

In concert with the UAT testing, the different workstreams remediated the issues depending on their severity and evaluated the proposed enhancements.

Stakeholder Sign Off

Once the highest severity issues were handled, we received sign-off for Metro-North, which opened the window for the full-scale UAT.

My Responsibilities:

- Issue Tracking - make sure that there were no external impediments to a timely fix and retest
- On-going Health Checks – Provided regular assessments to ensure that the expected benefits of the engagement are being realized and allowing for adjustments

The Results

As a result of this project, MTA leadership obtained the ability to see and drill into the entire overtime picture in one place. Despite the complexity of the existing data structures, the team was able to implement a production solution within the prescribed timeframe.

Business Value and Benefits

This project delivered value in the forms of both data enrichment and the building of foundational capabilities. The key benefits were:

- "Golden Source" (data warehouse)
- Improved data accuracy
- Speed to actionable insights
- Reduced overhead for data cleansing, processing, and normalization
- Improved overtime policy compliance

- Enhanced digital talent

Conclusion

By leveraging a combination of expertise, collaboration, and structured methodologies, we successfully transformed overtime management at the MTA, demonstrating the value of strategic consulting in driving organizational change and delivering tangible business outcomes.

> *Donald and I worked together for about 6-7 years while we were doing internal strategy for MTA New York City Transit.*
>
> *I was able to hand Don a wide range of topics -- really anything that came to our team to work on. The projects covered everything from subway maintenance productivity to administrative functions to creating an automated dashboard for tracking overtime payments.*
>
> *It was perhaps this last project on overtime that put Don's abilities to their fullest use. The project was very broad in scope, covering all 7 separate MTA agencies, with all the coordination difficulties that would require. Besides working with representatives from all those agencies, Don had to work with teams in IT (on the coding of the website dashboard) and our different payroll units to establish the lookups for the thousands of different codes so the data could be interpreted correctly. Whether the work was this kind of nitty-gritty detailed work or high-level coordination and presentation, Don handled it smoothly.*
>
> *Lastly, Don's approach to his job and work was always that of the consummate professional. He approaches every task in a calm, organized and thoughtful manner. He partners easily with others to get the work done. He was a major asset to our team during his years at the MTA.*
>
> **Andrew Kuziemko, Vice President - Strategic Initiatives at New York City Transit**
> December 2023

Contact: https://donaldmcmichael.com