

How We Leveraged Data to Overcome Resistance to Investment in Automation



Matt Collier



John Cook



Michael Kilkelly



DIGITAL BUILT WEEK AMERICAS

JUNE 15-17, 2023 | DALLAS, TEXAS

Digital Built Week Americas 2022

Questions are welcome at any time.

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Session Description

Over the past few years, IMEG has grown its automation capabilities from a handful of Dynamo graphs to a full-fledged software development team. The cornerstone of this growth is usage data. In this presentation, we will discuss how we collected and leveraged this data to convince leadership to invest heavily in custom tools and build a team dedicated to supporting this effort.

Learning Objectives

At the end of this session, participants will be able to:

- Describe the importance of collecting usage data at any stage of your automation journey
- Formulate a plan for what data to collect
- Understand how to calculate the impact of your custom tools
- Understand strategies for collecting usage data
- Understand how to get started with visualizing usage data

[Additional Handouts On GitHub https://github.com/MatthewACollier/BILT2023](https://github.com/MatthewACollier/BILT2023)

IMEG's Automation Journey:



John Cook

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IMEG's Automation Journey:



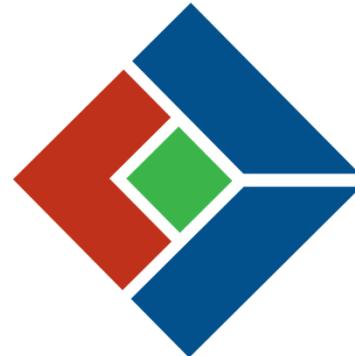
Matt Collier



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IMEG's Automation Journey:

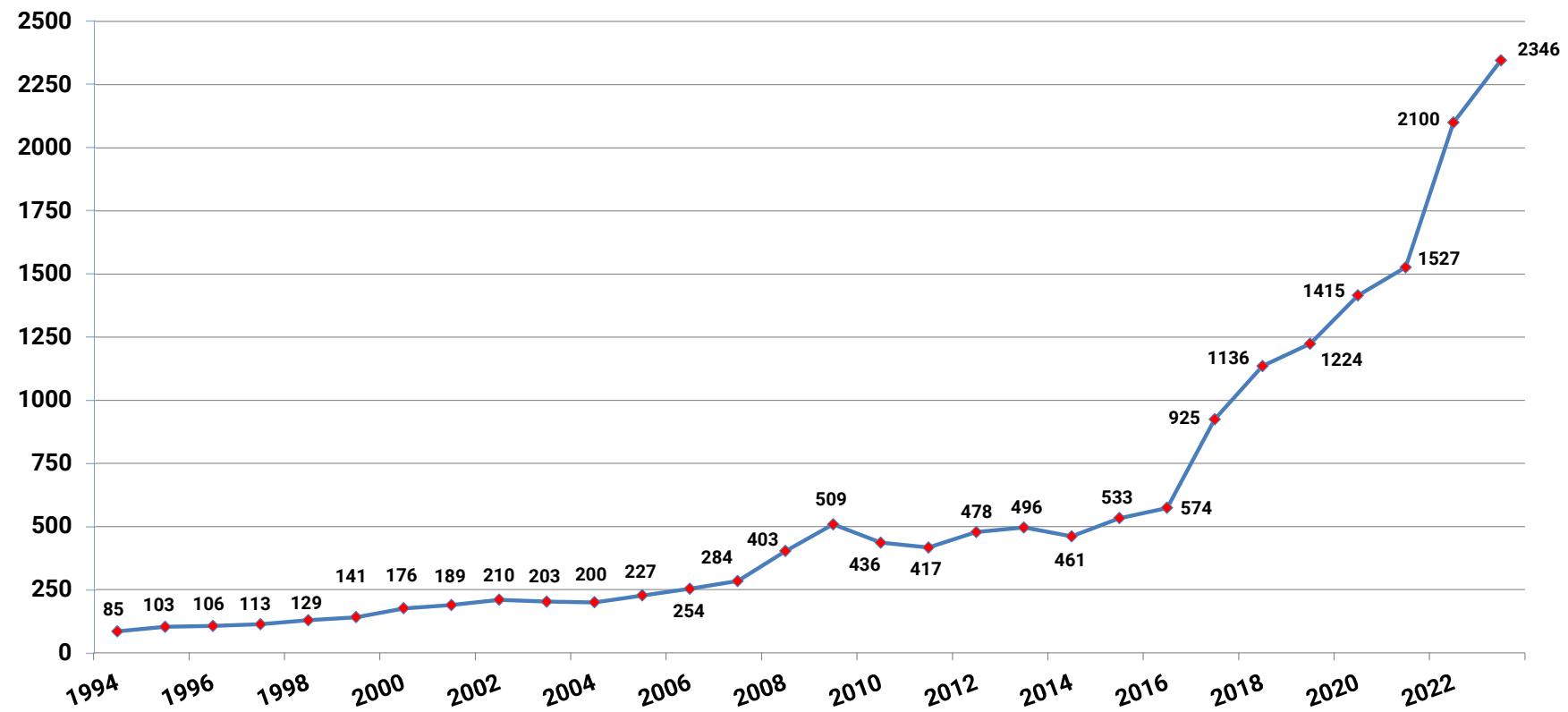


Michael Kilkelly

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Our Staff Growth



IMEG's Automation Journey:

Forming a team

2020

- Matt and his team had just released their first electrical plugin
- John and Michael had several plugins created and ready to go
- Combined efforts to create a single IMEG toolbar and rolled it out to the organization

2021

- Officially created product ownership team
- Officially created a development team

2022 - Today

- We have four product owners, four developers, and the team is growing
- Building several new tools per year



Obstacles Blocking Automation Growth:

- Leadership resistant to new investment
- Resistance to change
- Perceived financial risk
- Justification of new costs at each step
- Proving value of existing portfolio



Tell Your Story And Prove It With Data!



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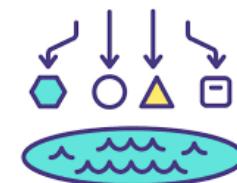
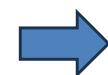
Our Data Collection Journey:



Rough Estimates



Slack

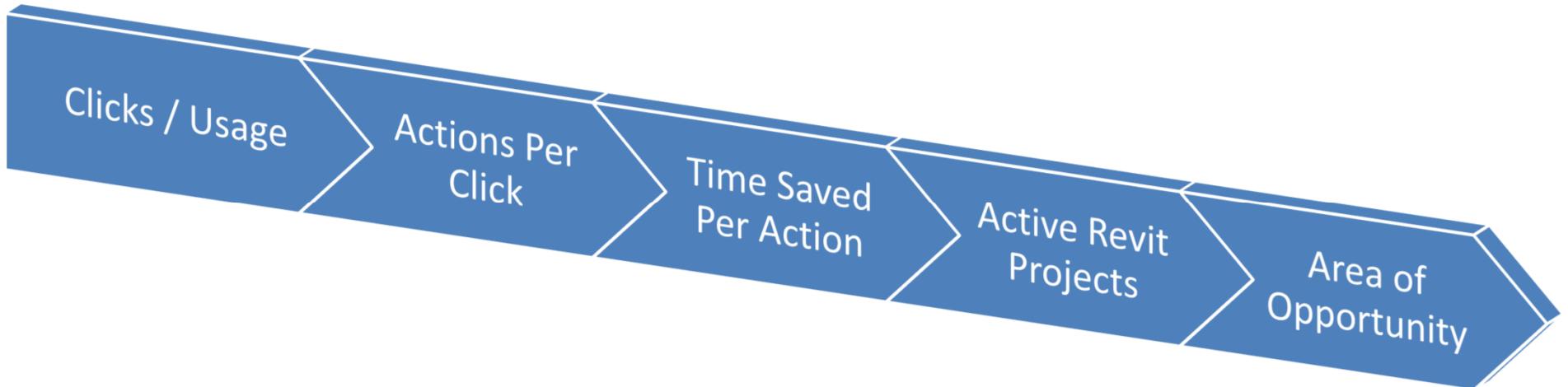


Data Lake



Data to Collect

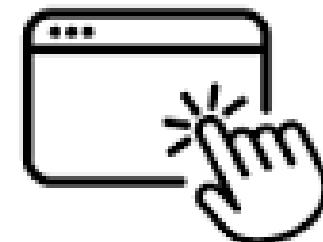
What story are you telling at each stage?



Data to Collect: Clicks / Usage

- What story are you telling at this stage?
- In the beginning this may be enough
- What tool was used?
- Who used the tool and where?
 - Name
 - Role
 - Team / Office
- What project was the tool used on?
 - Project number
 - Project name
- When was the tool used?

Clicks / Usage



Data to Collect: Actions Per Click

- What story are you telling at this stage?
- Basic clicks/usage data is no longer enough, the story now needs more detail
- How are the tools being used?
- Not all clicks have equal value
- By quantifying exactly what the tool does in each usage, you can better understand the impact

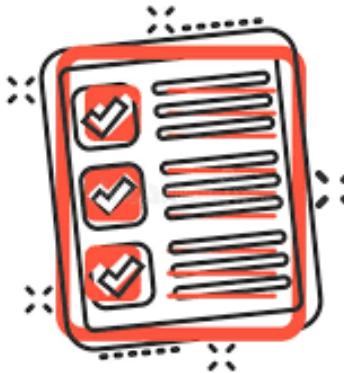
Actions Per Click



Quantifying the Time Savings



Assumptions



Surveys

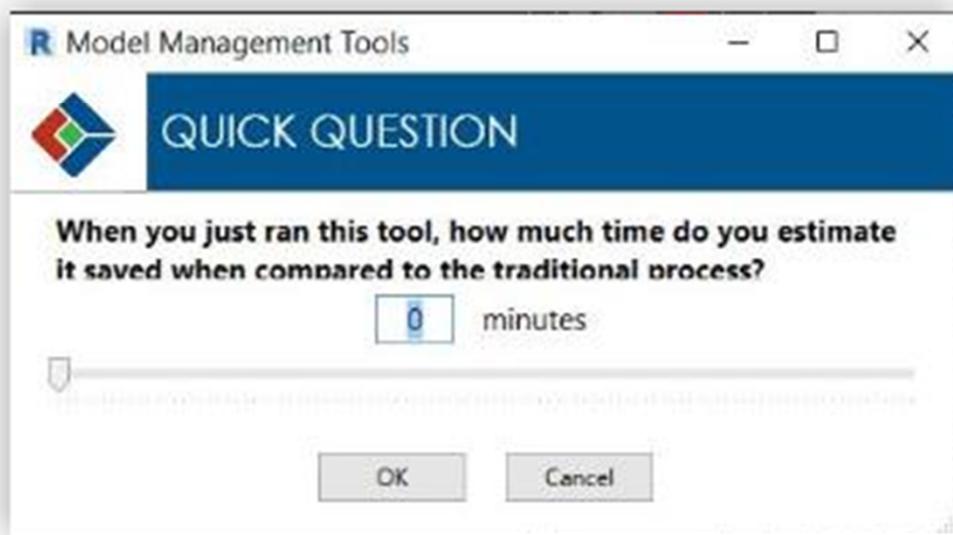


Time Studies



Quantifying the Time Savings

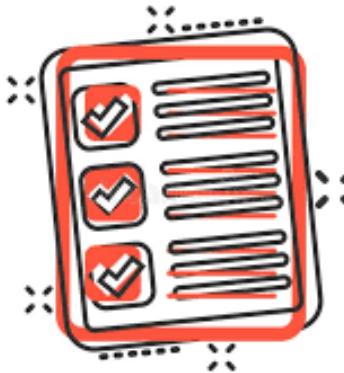
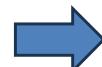
Time Saved Per Action



Quantifying the Time Savings



Assumptions



Surveys



Time Studies

Data to Collect: Active Revit Projects

- What story are you telling at this stage?
- You already have a great story proving your tools are being used, and what value they provide, but could the impact be greater?
- How many projects are we actively working on in Revit
- How many active Revit users do we have?



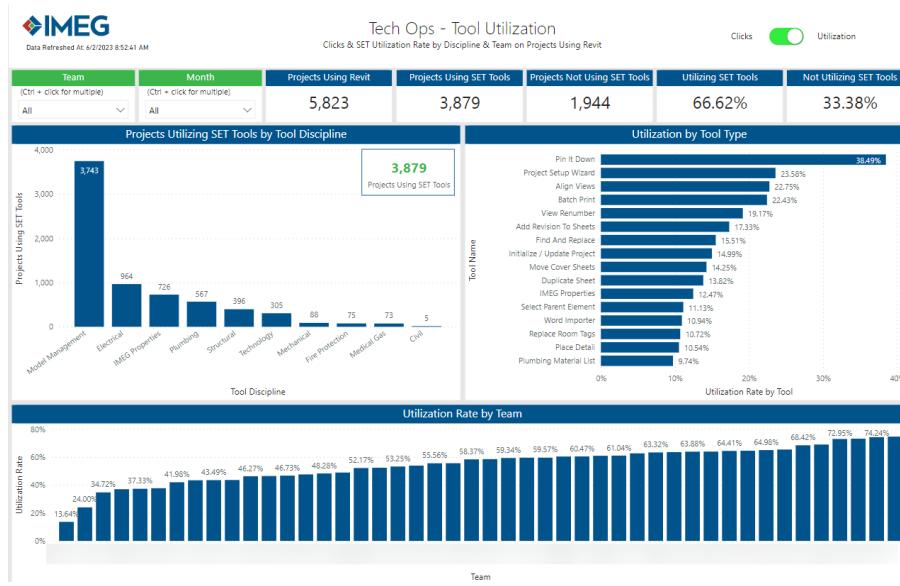
Active Revit
Projects



Quantifying the Area of Opportunity

Area of
Opportunity

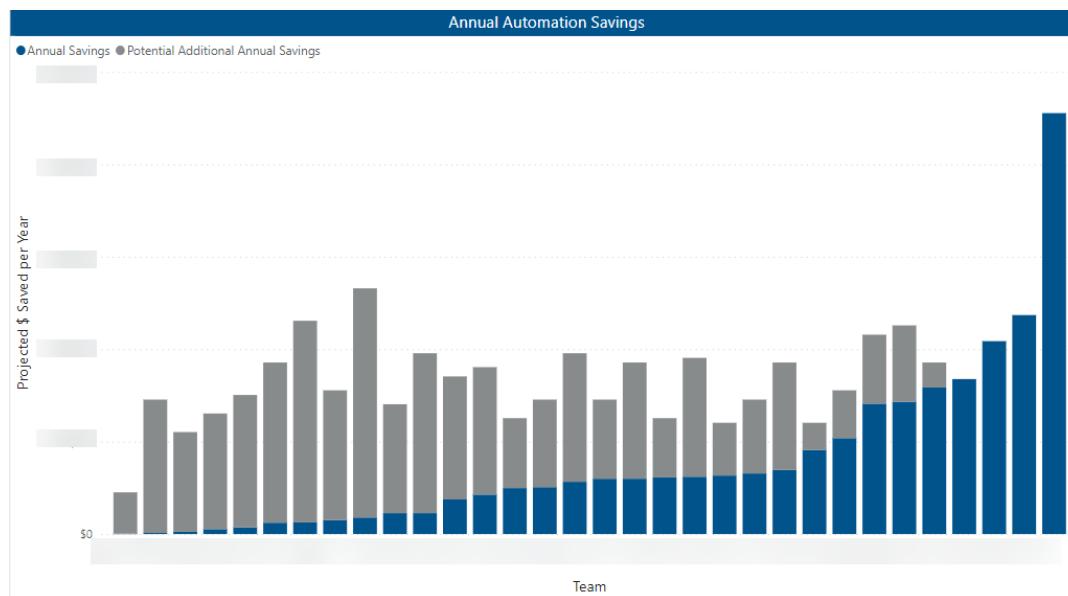
- Utilization rates
 - How many projects are using tools compared to how many are being worked on?



Quantifying the Area of Opportunity

Area of
Opportunity

- Set a benchmark
 - We use average time saved per full time employee for the top 1/3 of teams
 - Project that benchmark on all teams based on team size to compare actual time saved to the benchmark



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We Have Planned What Data to Collect, Now How Do We Make It Happen?



Story ✓



Plan ✓



Collecting Data: Method 1: Webhook to Existing Messaging Platform

1. Create Slack workspace and channels for your data
<https://slack.com/>
2. Enable incoming webhooks in your workspace
<https://api.slack.com/messaging/webhooks>
3. Add webhook call to your plugin or Dynamo script
 1. Dynamo example <https://radumg.github.io/DynaSlack/>
 2. C# example <https://gist.github.com/jogleasonjr/7121367>
4. Export messages to CSV file using “/export” command in Slack

Collecting Data: Method 1: Webhook to Existing Messaging Platform

Exporting #imeg_ [REDACTED]

Date Range (optional)

Start Date

mm/dd/yyyy

End Date

mm/dd/yyyy

Format

CSV

JSON

HTML

Text

CSV

Your team is subscribed. Enjoy Export without the need for a CSV file. To upgrade your subscription, visit the [billing portal](#).

Your team's current usage: 0 messages

Export

Collecting Data: Method 1: Webhook to Existing Messaging Platform

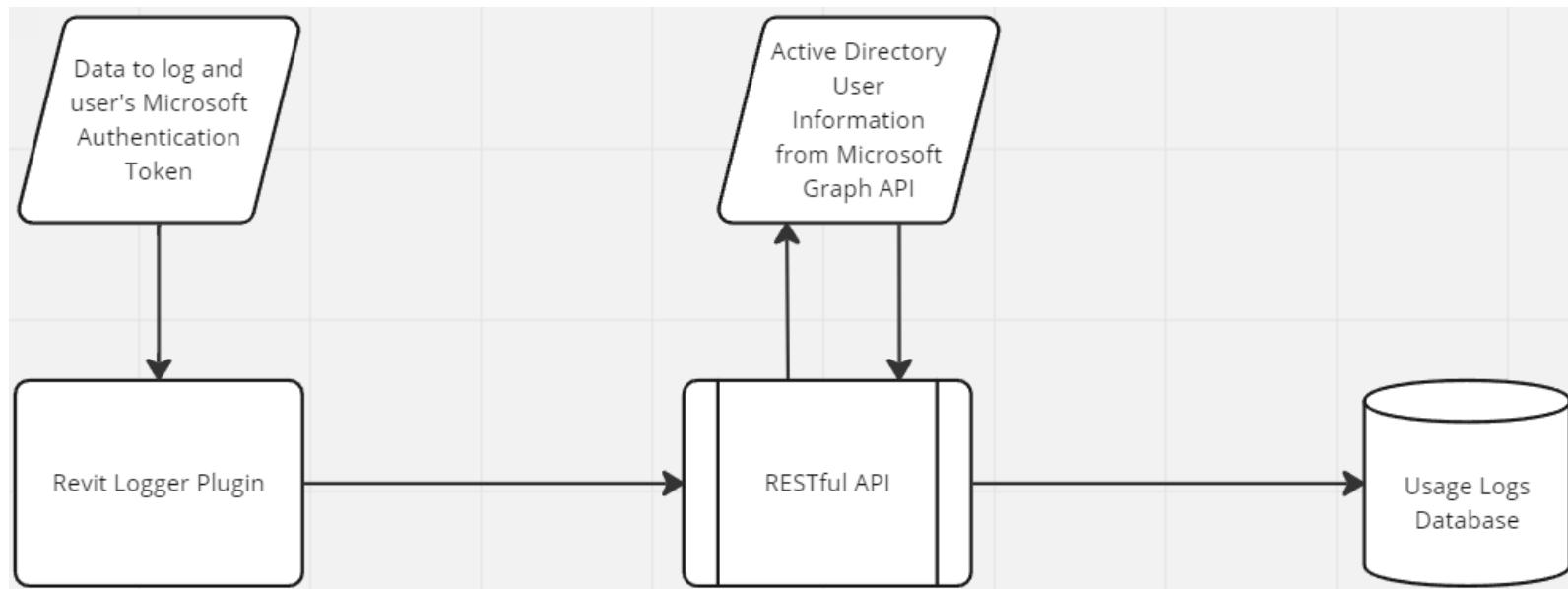
Pros:

- Easy Implementation: Implementing the webhook to a messaging platform like Slack is relatively straightforward and requires minimal coding.
- Real-Time Access: With the webhook, usage data can be accessed and monitored in real time, providing immediate insights into add-in usage.

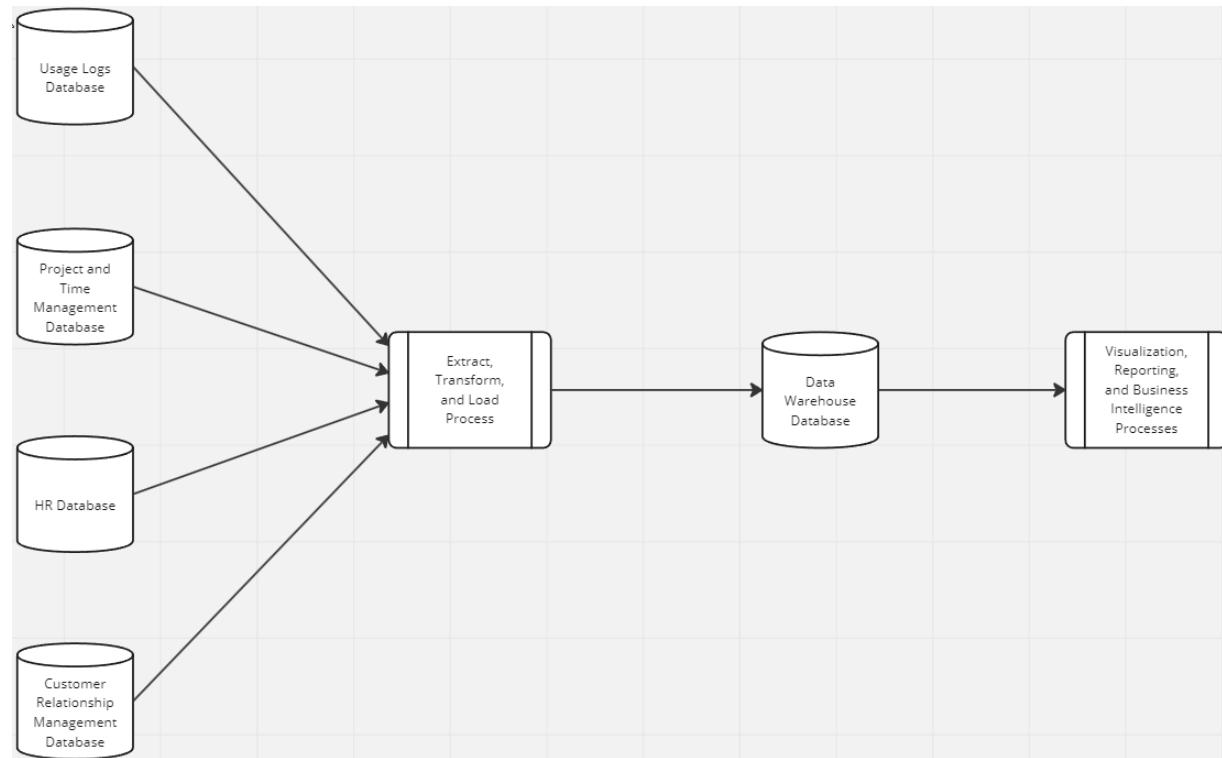
Cons:

- Data Extraction Challenges: While real-time access to user data is beneficial, extracting and manipulating aggregated data from the messaging platform can be cumbersome. Using commands like "/export" in Slack to export message data may require additional data manipulation and analysis steps.

Collecting Data: Method 2: Log to Database Using Custom RESTful API



Collecting Data: Method 2: Log to Database Using Custom RESTful API



Collecting Data: Method 2: Log to Database Using Custom RESTful API

Pros:

- Easy Data Extraction: Logging data directly to a database simplifies extracting and analyzing the collected information. Data can be easily queried and manipulated for further analysis and reporting.
- Incorporation of User-Specific Data: By leveraging the Microsoft Graph API, user-specific data from Active Directory can be seamlessly integrated into the database, providing deeper insights into user behavior and add-in usage patterns.

Cons:

- Implementation Complexity: Compared to the webhook method, setting up a custom RESTful API and database integration requires more technical expertise and effort during the implementation phase.

Visualizing Usage Data: Microsoft Power BI



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Visualizing Usage Data: Microsoft Power BI

- Getting started with Power BI
 - <https://powerbi.microsoft.com/en-us/getting-started-with-power-bi/>
- Add data sources
 - <https://learn.microsoft.com/en-us/training/modules/get-data-power-bi/3-connect-data-sources-power-bi-desktop>
- Add visuals to your report
 - <https://learn.microsoft.com/en-us/training/modules/visuals-in-power-bi/>
- Publish your report
 - <https://learn.microsoft.com/en-us/training/modules/publish-share-power-bi/>

Conclusion:

- To demonstrate value, you must tell a compelling story that quantifies impact
- The story will evolve in multiple stages, at each stage you must:
 - Identify the story you are telling
 - Plan what data to collect
 - Plan how to collect the data
 - Create visuals to illustrate the story



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Reminder

Speaker and Session Feedback is Appreciated

- Go to Sessions
- Select this Session
- Select Session Rating

How We Leveraged Data to Overcome Resistance to Investment in Automation
Session 3.3

Matthew Collier, IMEG | Michael Kilkelly, IMEG | John Cook, IMEG

Visit us at the Speaker Lounge

We will be at the **Speaker Lounge** outside the Exhibition Hall for further conversations. Please join me there at this time:

N

Questions?

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Matthew Collier, IMEG | Michael Kilkelly, IMEG | John Cook, IMEG