



January 23, 2024

TO: Joint Technology Committee

FROM: Manish Jani, Deputy Director, 303.866.5844
Natalie Castle, Director, 303.866.4778

SUBJECT: Enterprise Email System: Google vs. Microsoft

Summary

Decision requested. Staff respectfully requests that the Joint Technology Committee make a recommendation to the Executive Committee of the Legislative Council about whether the legislative branch should purchase accounts for legislators and staff for Google Workspace Enterprise Plus or Microsoft M365 E3.

Table 1 provides a brief summary of each section of this memorandum, including survey results, stakeholder feedback from users and LCS accessibility, system administration, and information security staff. While this memorandum does not provide cost estimates, a qualitative comparison is provided, along with information about vendor use in other state agencies and legislatures.

This memorandum summarizes the results of community outreach and validation of existing research.

Contents

Summary	Page 1
Member and Staff Survey Summary	Page 3
Summary of Stakeholder Input: Users	Page 4
Vendor Profile	Page 4
Service availability	Page 5
Technical support	Page 6
Transparency	Page 7
Change management	Page 8
Data migration	Page 9
Contracting and Licensing	Page 9
Regulatory compliance	Page 10
Data location and security	Page 10
Third party integrations	Page 10
Stakeholder Input: Accessibility	Page 11
Stakeholder Input: Administration	Page 11
Stakeholder Input: Info. Security	Page 12

Appendices

A: Stakeholder Feedback from Users	Page 17
B: Member and Staff Survey Results	Page 41
C: Additional Resources	Page 45



**Table 1
Summarized Findings and Preference Ratings**

Focus Area	Details	Preference Rating
Member Survey Results	Members overwhelmingly preferred Google (80%) over Microsoft (20%). See pages 3 and 17 for more information.	Google <input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> Microsoft
Staff Survey Results	The margin of preference for Google (46.2%) over Microsoft (39.2%) was slimmer among staff than among members. See pages 3 and 17 for more information.	Google <input type="checkbox"/> <input type="checkbox"/> <input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> Microsoft
User Stakeholder Analysis	Stakeholder testing resulted in limited feedback. Users who evaluated both systems tended to prefer Microsoft over Google.	Google <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input checked="" type="checkbox"/> <input type="checkbox"/> Microsoft
Vendor Profile	Both vendors provide an adequate and generally equal performance for vendor profile criteria. More information begins on page 4.	Google <input type="checkbox"/> <input type="checkbox"/> <input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> Microsoft
Accessibility	Many users perceive Google to be more accessible because of its emphasis on seamless collaboration and platform agnostic nature for individuals with disabilities. While Microsoft continues to improve accessibility, users still encounter limitations in certain products. See page 11.	Google <input type="checkbox"/> <input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> Microsoft
Administration	Google Workspace is simpler and cheaper to administer but offers fewer integrated features. Microsoft M365 provides more features, but may be a more complex solution than needed and is more complex and expensive to implement and maintain. See page 11.	Google <input type="checkbox"/> <input type="checkbox"/> <input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> Microsoft
Information Security	Both Google and Microsoft provide adequate security measures and implementations. See page 12 for more information.	Google <input type="checkbox"/> <input type="checkbox"/> <input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> Microsoft
Other Colorado State Entities	The executive branch uses Google. The Judicial branch, Attorney General’s Office, and Department of State use Microsoft.	Google <input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> Microsoft
Other State Legislatures	At least 19 state legislatures or legislative offices use Microsoft, while no legislature has reported using Google Workspace.	Google <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input checked="" type="checkbox"/> Microsoft
Cost	Google is priced significantly lower and will extend the same pricing provided to OIT at scale. Microsoft also has a reputation of increasing its prices at faster rates over time than Google.	Google <input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> Microsoft



Member and Staff Survey Summary

A survey for preferences was sent to all members and legislative staff. This section summarizes the results of the surveys. Detailed results of the member and staff surveys are available in Appendix A, which begins on page 17.

Overall preference. Members significantly preferred Google Workspace (80%) over Microsoft 365 (20%) while the preference for Google Workspace (46.2%) over Microsoft 365 (39.2%) was much narrower amongst staff.

When asked for their overall preference again in light of fact that the Executive Branch uses Google, the margin over which members preferred Google Workspace over Microsoft 365 fell somewhat to 70% (Google) to 23.3% (Microsoft). Staff results were largely unchanged.

Highlights from member comments. Some members stated that they prefer Google because they currently use it, which would make transitioning easier and would prevent having to use different technologies for campaign and legislative use. The ability to collaborate with legislative staff on the same platform was stated as a clear benefit. Data storage limits and costs were identified as concerns. Some members currently have third party integrations into other software with Google, while others use Microsoft products proficiently with a Mac. Some members indicated that it is important that the selected platform work on a Mac.

While members are generally supportive of a state provided system, some members indicated that they would prefer not to have their email on a state provided resource. Members expressed concerns related to privacy, confidentiality, custodianship, and the application of universal policies.

Highlights from staff comments. Staff are more evenly divided between Google and Microsoft. All staff agree on the need for change from the existing system. In fact, some staff indicated that they do not care which product is selected, as long as they no longer have to use HCL Notes. Concerns regarding data privacy in the cloud, security, separation from the executive branch, the potential loss of access to Excel, and the need for training were top of mind. Most staff supported the ability to interact more closely with legislators and executive branch staff, although a few expressed concerns.

Individual staff expressed very strong opinions on specific products, without any clear overall consensus. Some prefer Microsoft for seamless integration across its products such as Word, Email and OneNote. Others prefer Google for its simplicity and ease of use.

Email. Generally, Google was the preferred email provider for staff and members. Members overwhelmingly preferred Google (83.3%) over Microsoft (16.7%). The margin of preference for Google (57.7%) over Microsoft (42.3%) was significantly slimmer amongst staff.



Word processing. 50% of members preferred Google Docs over Microsoft Word (16.7%). Staff also preferred Google Docs (48.5%) over Microsoft Word (33.8%), although some expressed concerns about reduced control over changes while using Google Docs with collaborators.

Productivity suite. Members showed a slight overall preference for Google's productivity suite. Members preferred Google Slides (36.7%) over MS PowerPoint (26.7%) and Google Sheets (46.7%) over MS Excel (20%).

Staff showed a preference for Microsoft productivity tools. Staff prefers MS PowerPoint (44.6%) over Google Slides (27.7%) and MS Excel (53.1%) over Google Sheets (30%). It is important to note that we will continue using the Microsoft Office productivity suite regardless of which email service we select.

Video conferencing. Members overwhelmingly preferred Zoom (90%) for video conferencing relative to Google Meet and Microsoft Teams. Staff were not given Zoom as an option. Given that, staff indicated a preference for Google Meet (42.3%) to Microsoft Teams (29.2%). This was the widest difference in preferences among staff between Google and Microsoft.

Chat. There were no clear winners for chat functionality. Staff prefer Slack, which is outside the scope of this project.

File sharing and collaboration. For file sharing and collaboration, members preferred Google Drive, then Box, followed by One Drive. Staff overwhelmingly preferred Google Drive, followed by MS One Drive, and then Box.

Summary of Stakeholder Input: Users

Sufficient evidence was not gathered in this stage because of the learning curve required to test all aspects of these products, and the limited time available, especially given the special session. One respondent clearly stands out for her in-depth analysis of both products and clear feedback. The few users who evaluated both systems and provided feedback to staff tended to prefer Microsoft over Google. Comments submitted to LIS from users participating in the stakeholder analysis are available in Appendix B, which begins on page 41.

Vendor Profile

A vendor's profile includes criteria such as service availability, technical support, transparency, change management, data migration, contracting and licensing, regulatory compliance, data location and security, and third party integrations. Staff contacted both vendors to obtain information about each of these. The following paragraphs summarize each vendor's responses to staff's inquiries about these criteria.



Service availability (Service Level Agreement)

Service availability (a.k.a. “uptime”) and specifications for availability in service-level agreements that would guarantee minimal to no service outages and a guaranteed response rate to any outages that do occur, are important. Both vendors are typically fulfilling the contracted 99.9% uptime for multiple workloads. Occasionally, outages occur that get widespread press attention, but if uptime is examined over longer time periods, there are no substantial differences.

Service Level Agreements (SLA) describe the vendor’s commitments for uptime and connectivity for their products. If the vendor does not achieve and maintain the Service Levels for each Service as described in their SLA, then customers may be eligible for a credit towards a portion of monthly service fees.

Google. Google has consistently provided “uptime” at 99.9 percent or greater to the executive branch each month.

Google defines “downtime” as that period of time during which the user web interface for one or more Google Workspace Covered Services used by a customer has more than a five percent user error rate. “Monthly uptime percentage” is the percentage of minutes in a calendar month during which “downtime” does not happen.

Table 2 shows the number of service days Google will credit back to the customer at the end of the service term if their monthly uptime percentage for that customer falls below 99.9 percent during any particular month.

Table 2
Google’s Service Level Agreement

Monthly Uptime Percentage	Service Days Google will Credit to the Customer
Between 99.0% to 99.9%	3
Between 95.0% and 99%	7
Lower than 95.0%	15

Source: <https://workspace.google.com/terms/sla/>

Outage notifications. Google provides information about any outages via their *status boards*. Google will also provide any outage specifics on a ticketing support console to which their customers are provided access.



Microsoft. Microsoft’s reported quarterly worldwide uptime percentage from 2019 through 2023 ranges from 99.97% - 99.99%.¹

Microsoft defines “downtime” as that period of time during which users are unable to send or receive email with Outlook Web Access, multiplied by the number of affected users. For example, if 100 users in a particular company were unable to send or receive email for five minutes during a service period, that company would have experienced 500 minutes of downtime that service period. The “uptime percentage” is the percentage of minutes in a service period during which “downtime” does not happen.

Table 3 shows the percentage of the applicable service fees that Microsoft will credit to the customer if they approve a claim by the customer that a particular service period’s uptime percentage falls below 99.9 percent.

Table 3
Microsoft’s Service Level Agreement

Uptime Percentage	Service Credit
Between 99.0% to 99.9%	25%
Between 95.0% and 99%	50%
Lower than 95.0%	100%

Source: <https://www.microsoft.com/licensing/docs/view/Service-Level-Agreements-SLA-for-Online-Services?lang=1&year=2023>

Microsoft does not schedule downtime for this service.

Outage notifications. Microsoft notifies customers of any outages by communicating directly to impacted customers on an application available on their website. In most cases, service incident updates are provided on an hourly basis.

Technical Support

Google. According to the Office of Information Technology (OIT), Google responds promptly to support requests. OIT staff are also easily connected to product engineers and owners, which can be very helpful in understanding the applications and providing quick resolutions. Additionally, Google is attentive when the applications do not function as needed and will assist in submitting “feature requests,” which in some cases have resulted in feature additions to the

¹ <https://learn.microsoft.com/en-us/office365/servicedescriptions/office-365-platform-service-description/service-health-and-continuity>



global Workspace products. Additional information can be found in the [Google Workspace Technical Support Services Guidelines](#)².

Microsoft. In addition to Microsoft’s enterprise technical support, customers typically have secondary support contracts with Microsoft vendors. Planet Technologies, a local Microsoft partner, provides additional ongoing support options for learning, adoption, expert support and advisory services and migration services at an additional cost.

Transparency

The two vendors have different approaches to how much information they provide to customers about their service and usage. The information LIS requires vendors to provide includes:

- information on outages (duration, cause, scale);
- information about known problems (both fixed and existing);
- application data (for example, with email, the ability to track messages based on sender, recipient, subject, date and message ID, attachment size, total transit time and delivery status);
- mailbox size, quota usage and trending;
- last logon dates and activity;
- delegations and mailbox permissions;
- mobile device and sync statistics; and
- retention policy compliance.

Google. Google provides [customized reporting in their administration console](#).³ The reporting includes usage and activity. Google also provides raw data exports, which can be added to any visual dashboard or analytical software. Google is very transparent about their [data centers](#), providing information about location, security, and access workflows.⁴

Microsoft. Microsoft’s online administrative center provides a centralized set of status information such as service health, windows release health, product feedback, network connectivity, and software updates. Microsoft provides “usage reports” to clients using a customized dashboard. Usage statistics can be compared to benchmarks from similar organizations.

² <https://workspace.google.com/terms/tssg/>

³ https://apps.google.com/support/widget/articlehome?hl=en&article_url=https%3A%2F%2Fsupport.google.com%2Fa%2Fanswer%2F4580176%3Fhl%3Den&assistant_id=generic-unu&product_context=4580176&product_name=UnuFlow&trigger_context=a

⁴ <https://www.google.com/about/datacenters/>



Change Management

A steady stream of changes in functionality is normal in the cloud model. Indeed, the lack of periodic, large, disruptive upgrades in favor of a constant drip-feed of new features is one of the main benefits of cloud platforms. However, these changes can be disruptive if a company fails to communicate about them effectively with their customers. Effective communication, or “change management,” strategies include the:

- frequency of change (from both an administrator and end-user perspective);
- ability to control the pace of change or test changes before full deployment;
- mechanism for communicating changes;
- clarity of the communication; and
- timeliness of change notification.

Both Google and Microsoft have a clear and simple process for communicating changes through their respective Workspace Release Calendar and Microsoft 365 Roadmap.

Google. Google provides *daily updates to upcoming features*⁵ and hosts quarterly roadmap sessions with open question and answer opportunities. Google’s account manager and/or a reseller of Google’s products may also aid in tracking, informing, and supporting upcoming updates.

Google’s updates are generally global, so there are not many options for adjusting timelines. However, for more disruptive updates (deprecations, migrations, etc.), Google will typically allow clients to choose customized implementation timelines, including providing ample warnings and visual banners for users.

Microsoft. The Message center in the “admin center” gives a high-level overview of a planned change and how it may affect users, and provides links to more detailed information to help clients prepare for the change. Updates are delivered through the customer portal and via email. More information about *tracking new and changed features is available in the Microsoft 365 Message Center*.⁶

Staff asked Microsoft about how they would handle disruptive changes during the legislative session. Microsoft responded by saying that they “allow deferred patches and are very familiar with legislative sessions in states tied to this reason.”

⁵ <https://workspaceupdates.googleblog.com/>

⁶ https://learn.microsoft.com/en-US/microsoft-365/admin/manage/message-center?view=o365-worldwide&WT.mc_id=365AdminCSH_inproduct



Data Migration

Google. The OIT reports that, in their experience, migration has been relatively simple. Google uses built-in *Data Migration Service*⁷ applications for personal Google accounts, in addition to white glove support from both Google and resellers during migration.

Microsoft. Microsoft does offer no-cost migration service to some customers. However, this will likely not be available to us, based on our unique scenario of staff using HCL Domino/Notes for email and legislators using personal Gmail accounts. According to Planet Technologies, their data migration services would include a documented process for Gmail users to move their PSTs to M365, but will not migrate them. Migrating from HCL Domino/Notes requires a specific migration tool. The company indicated that they will not be able to provide the costs for the actual migration until after the discovery and design phase.

Contracting and Licensing

Google and Microsoft use different language for contract details around indemnification and liability. We would request sample contracts for our legal attorneys for guidance on whether or not contract details should have a material impact on vendor selection. Unwillingness to include or amend specific items may lead to deal failure.

Other contract details where differences may be material are termination and exit clauses, price rise caps, data privacy, and contract complexity, duration, and renewal rights.

In general, contracting and licensing for Google is much more straightforward, with less room for negotiation. Microsoft licensing policies are notoriously labyrinthine, partly because they must accommodate a much larger slate of products and cover more complex deployment and upgrade situations. Enterprises with fewer than 3,000 seats appear more likely than average to be leaning toward Google, mostly due to the ease of licensing, pricing and administration.

Considering OIT uses Google Workspace while the Department of Law and State use Microsoft M365, both vendors have existing contracts with Colorado state entities and therefore would meet the required contractual terms and conditions to do business with the State.

Google. The terms and conditions for Workspace are held directly by Carahsoft and can be found *here*.⁸ SIPA is a potential procurement source for Google licensing and professional services through Resultant.

⁷ https://apps.google.com/supportwidget/articlehome?hl=en&article_url=https%3A%2F%2Fsupport.google.com%2Fa%2Fanswer%2F9216781%3Fhl%3Den&assistant_id=generic-unu&product_context=9216781&product_name=UnuFlow&trigger_context=a

⁸ <https://www.carahsoft.com/google/contracts/end-user-terms>



Microsoft. Value Added Resellers (VARs) such as Insight, CDW-G, SHI and Softchoice all have the ability to contract through a master agreement for licensing. For professional services, Planet Technologies typically use COVENDIS for State of Colorado customers. NASPO's contract vehicle through SHI and Carahsoft is also an option.

Regulatory Compliance

The Colorado General Assembly is generally not subject to external regulations that would impact the selection process. Both vendors have sufficient certifications to indicate compliance with regulatory standards.

Google. Google's FedRAMP certifications and information on both Google Cloud and Workspace are available [here](#).⁹ Workspace currently holds a "FedRAMP High" certification. Google offers agreements for PHI data as well as CJI and FTI. Google does not host a separate "Gov Cloud" like Microsoft does. Instead they provide their standard compliance to all with available plugs-ins to increase security/compliance as needed (e.g. [Assured Controls](#)¹⁰ for CJI).

Microsoft. Commercial Microsoft 365 E3 is FedRAMP certified and has all the listed certifications complying with data protection standards such as PCI, FTI, FERPA, and HIPAA. The Government Community Cloud (GCC) also has IRS1075 and CJIS.

Data Location and Security

Google. All data is located within the United States, and only United States personnel have access. All data hosted within a client's domain is owned by the client. Google cannot access or provide data to any parties without the client's approval.

Microsoft. Most Office 365 services allow customers to specify the region where their customer data is located. Microsoft may replicate customer data to other regions within the same geographic area (for example, the United States) for data resiliency, but Microsoft won't replicate customer data outside the chosen geographic area. Data residency in the Government Community Cloud (GCC) is limited to the continental United States.

Third Party Integrations

Google. The ability exists to plug and play any third party add-on or extension that is located on the [Google Marketplace](#)¹¹ or [Chrome Web Store](#)¹². Many of OIT's internal solutions utilize these

⁹ <https://cloud.google.com/security/compliance/fedramp>

¹⁰ https://apps.google.com/support/widget/articlehome?hl=en&article_url=https%3A%2F%2Fsupport.google.com%2F%2Fanswer%2F10343243%3Fhl%3Den&assistant_id=generic-unu&product_context=10343243&product_name=UnuFlow&trigger_context=a

¹¹ <https://workspace.google.com/marketplace>

¹² <https://chrome.google.com/webstore/unsupported>



off the shelf plug-ins with high success and reliability. Google will vet third party applications on their marketplace, and will provide transparency and governance over them. Google's Workspace administration console also has configuration capabilities to connect to third party applications. Google provides a *high level overview* of third party application integration with Google Workspace on its website.¹³

Microsoft. According to Microsoft, M365 can accommodate hundreds of third party applications.

Stakeholder Input: Accessibility

Both Google Workspace and Microsoft 365 have documented their efforts to ensure their products are accessible by completing Accessibility Conformance Reports (ACRs).

Google is perceived to score higher in terms of accessibility over Microsoft. Its emphasis on collaboration and platform agnostic nature facilitates seamless collaboration and information consumption for individuals with disabilities, thus minimizing barriers associated with their preferred technology. While Microsoft continues to improve accessibility, users still encounter limitations in certain products. Google and Microsoft both acknowledge the importance of addressing accessibility concerns and are working toward refining their products for a more inclusive user experience. Accessibility can vary based on individual needs and preferences.

Stakeholder Input: System Administration

Legislative Council Staff's System Administration team spent time evaluating both M365 and Google Workspace. From the perspective of our scope of work, it is not a clear-cut decision. If we were making the decision, two of us would choose Google, and two of us aren't sure yet. Here are some of the main points that have come out of our discussion.

Google Workspace Pros

- Less administrative overhead and simplified management
- Less training required
- Migration is likely to be faster
- User familiarity presents fewer adoption challenges

¹³https://apps.google.com/support/widget/articlehome?hl=en&article_url=https%3A%2F%2Fsupport.google.com%2Fa%2Fanswer%2F10010706%3Fhl%3Den&assistant_id=generic-unu&product_context=10010706&product_name=UnuFlow&trigger_context=a



Microsoft 365 Pros

- Industry standard with more available third-party tools and compatibility (for example, Veeam has a backup product for M365 but not for Google)
- Rich feature-set with expansive security, compliance, automation, and endpoint management capabilities (though some advanced features like PIM are not included in the E3 enterprise license).
- Our use of the Office suite would provide tight integration with cloud products and avoid a split environment
- Better admin account security with multifactor authentication than is available on Google

While Google is the simpler option in many ways, we might be restricting our future capabilities by using it. M365 will likely give us more power to adapt and address new needs as they arise. On the other hand, M365 might more of a complex solution than we need. Choosing it could result in greater personnel and budget requirements going forward than are justified.

Stakeholder Input: Information Security

Microsoft Defender and Google Security center have a long list of notable security features that are intended to keep any sized business or organization secure from cyber threats. This evaluation will focus on the “Zero Trust” security concept for email security implementation for both Google Security Center and Microsoft Defender.

Zero Trust is a security framework that requires all users, whether within or outside an organization’s network, to be authenticated, authorized, and continuously validated for security configuration and posture before being granted or keeping access to applications and data. The five pillars of the “Zero Trust Maturity” framework are: **Identity, Devices, Networks, Applications-Workloads,** and **Data Security**. Zero Trust enforces strict least-privileged access controls and continuous verification to help prevent breaches, reduce the blast radius of successful attacks, and hold up a strong security posture to face sophisticated cyber threats.

Google and Microsoft’s “Zero Trust” implementation strategies are described in detail below.

Google Workspace Security Center Zero Trust Implementation Strategy

Google Workspace security center archives Zero Trust through the following strategies:

- identity and endpoint management;
- application access and data protection; and
- continuous monitoring and compliance.



At the Identity and endpoint management level, Google Workspace security center implements the following zero trust measures:

- two-step verification;
- single sign-on (SSO);
- OAuth2.0 and Security Assertion Markup Language (SAML) support;
- real time, risk-based re-authentication; and
- endpoint management for mobile and laptop devices.

Two-step verification, also known as two-factor authentication and/or security keys, provides an extra layer of security to a user account in case a password is stolen. Once two-step verification is enabled, users can sign in to their accounts with a password or phone. Google Workspace also implements the use of a security key as a method of two-step verification. A security key is a small physical device that users can purchase to help verify an account. Security keys can be used by simply connecting the key to a phone, tablet, or computer.

Single sign-on (SSO) by Google offers a **Security Assertion Markup Language (SAML)** single sign on service that provides organizations with full control over the authorization and authentication of hosted user accounts that can access web-based applications like Gmail or Google Calendar. Using the SAML model, Google acts as the service provider, while Google partners act as identity providers that control usernames, passwords and other information used to identify, authenticate and authorize users for web applications that Google hosts.

Real time, risk-based re-authentication. Google offers real-time, risk-based re-authentication by utilizing “security challenges.” Security challenges are additional security measures that can be used to verify a user's identity in real time situations. There are two types of security challenges:

Login challenge: if an unauthorized user is trying to sign in to a Google Workspace account, a login challenge is presented. This may require the user to enter a password or another piece of information generally used during login.

Verify-it's-you challenge: if a user is attempting actions that are considered sensitive, a verify-it's-you challenge is presented. This may require the user to enter information that only the user would immediately know about themselves.

Endpoint management helps secure an organization's data and maximize productivity for users who want to access their Google account and services from their mobile devices, laptops, and desktops from anywhere. Google workspace security center endpoint management helps control which laptops, desktops, and other endpoints can access an organizations organization's data and get details about those devices. It is also capable blocking devices, signing out users



remotely, and using “Context Aware Access”. The four applications used for endpoint management are:

- basic mobile security;
- advanced mobile security and app management;
- computer security; and
- company-owned device management.

At the application access and data protection level, Google Workspace security center provides:

- Context-Aware Access;
- data-loss prevention / information rights;
- trust rules, AI classification, and spam view for google drive;
- automatic email spam phishing and malware defense; and
- encryption of data in transit and at rest.

Each of these are described in more detail below.

“Context Aware Access” helps control access to apps based on user and device context, such as whether their device complies with an organization’s IT policy. Context Aware Access provides granular access control security policies for apps based on attributes such as user identity, location, device security status, and IP address. Context Aware Access is capable of:

- allowing access to apps only from company-issued devices,
- allowing access to Drive only if a user storage device is encrypted, and
- restricting access to apps from outside the corporate network.

Data Loss Prevention (DLP), prevents data loss through creating and applying rules to control the content that users can share in files within and outside of the organization. DLP rules trigger scans of files for sensitive content and prevents users from sharing that content. Rules determine the nature of DLP incidents, and incidents trigger actions, such as the blocking of specified content.

Trust rules provide granular policies to control who can get access to Google Drive files. These policies can be applied to individual users, groups, organizational units, or specified domains. Trust rules provide flexibility in establishing collaboration boundaries, they can help users secure sensitive information and maintain compliance with industry standards and regulations. Spam View marks a file or an email as spam and provides users with the ability to select which type of unwanted content to report. Users can also block another user.

Automatic email spam, phishing, and malware defenses provide protection on all incoming mail against phishing and harmful software (malware). By default, Gmail displays warnings and moves untrustworthy emails to the spam folder. These defenses protect against suspicious attachments and scripts from untrusted senders, identify links behind short URLs, scan linked



images for malicious content, and display a warning when users click links to untrusted domains. They also protect against spoofing a domain name, employee names, email pretending to be from the organizations domain, and unauthenticated email from any domain.

Encryption of data in transit and at rest is an important piece of the Google Workspace Security Zero Trust strategy, helping to protect users' emails, chats, video meetings, files, and other data. Data and email encryption is achieved through the use of Transport Layer Security (TLS) for email routing, which allows Google and non-Google servers to communicate in an encrypted manner. Google workspace security provides email security in transit by developing and supporting the MTA-STS standard, allowing receiving domains to require transport confidentiality and integrity protection for emails.

At the continuous monitoring and compliance level, Google Workspace security center uses the security dashboard, alerts, and analytics as a global enterprise view of the email security posture of an organization. The security center provides advanced security information and analytics, and added visibility and control into security issues affecting an organizations domain.

Microsoft Defender Zero Trust Implementation Strategy

Microsoft Defender Zero Trust starts with a foundation of identity and device protection. Threat protection capabilities are built on top of this foundation to provide real-time monitoring and remediation of security threats. Information protection and governance provide sophisticated controls targeted at specific types of data to protect most valuable information and to help comply with compliance standards, including protecting personal information.

Microsoft Defender provides a strong Zero Trust end to end strategy and architecture by providing extended detection and response to its platform. Microsoft Defender Zero Trust solution automatically collects, correlates, and analyzes signal, threat, and alert data from across an organizations Microsoft 365 environment, including endpoint, email, applications, and identities.

- Endpoints, including laptops and mobile devices
- Data in Office 365, including email
- Cloud apps, including other SaaS apps that an organizations organization uses
- On-premises Active Directory Domain Services (AD DS) and Active Directory Federated Services (AD FS) servers

Microsoft Defender Zero Trust is accomplished through enforcing security policy at the center of its architecture. This includes Multi Factor authentication (MFA), Conditional Access, user account risk, device status, and other criteria and policies.



Identities, devices, data, apps, network, and other infrastructure components are all configured with appropriate security measures. Threat protection and intelligence monitors the environment, surfaces current risks, and takes automated action to remediate attacks.

Microsoft Defender achieves Zero Trust through the following steps:

- Step 1: Configure Zero Trust identity and device access protection — starting-point policies. The first step is to build the Zero Trust foundation by configuring identity and device access protection.
- Step 2: Manage endpoints with Intune. Enroll devices into management and begin protecting these with more sophisticated controls.
- Step 3: Add Zero Trust identity and device access protection — Enterprise policies. With devices enrolled into management, implementing the full set of recommended Zero Trust identity and device access policies, requiring compliant devices.
- Step 4: Evaluate, pilot, and deploy Microsoft Defender. Microsoft Defender is an extended detection and response solution that automatically collects, correlates, and analyzes signal, threat, and alert data from across an organizations Microsoft 365 environment, including endpoint, email, applications, and identities.
- Step 5: Protect and govern sensitive data. Implement Microsoft Defender Information Protection to help discover, classify, and protect sensitive information wherever it lives or travels. Microsoft Defender Information Protection capabilities provides the tools to understand data, protect data, and prevent data loss.

Information Security Evaluation Conclusion

Overall, both Google Workspace security center and Microsoft Defender provide adequate security measures and implementations meeting the zero trust framework standards. Microsoft Defender security platform is robust, providing protection from ransomware, malware, phishing, and other threats. The Google Workspace security center is an enterprise-grade security solution, which provides a granular approach to implementing the zero trust security framework. Google's approach enables secure access to applications and resources, and offers integrated threat and data protection.



Appendix A: Member and Staff Survey Results

Members and staff were surveyed about their preference. The survey did not control for exposure to the two product suites and individual products within these suites, which may be unequal and will influence these responses.

We received 30 responses from the legislative membership. Members were asked a variety of questions related to their preference of tools to perform various activities, and for their preference specifically between Google and Microsoft. They were also asked if they agreed with the Executive Committee's decision to purchase an enterprise solution.

We received 130 responses from non-partisan and partisan legislative staff. The staff survey was the same as the one provided to members, except a few questions were modified following feedback from the member survey.

Additionally, while we did mention that the product selection would not have an impact on our current use of Microsoft Office (including Excel), Zoom, Box, or WordPerfect products, staff still voiced concerns about the inability to use Excel.

The following pages provide summarized results for each question, as well as representative samples of comments provided in response to open-ended questions.

Graphic Summaries

Email and Calendaring	Page 18
Word Processing	Page 20
Presentations	Page 21
Spreadsheets	Page 22
Video Conferencing	Page 23
Chat	Page 25
File Storage and Collaboration	Page 26
Overall Choice for Collaboration	Page 27
Overall Choice for Team	Page 28
Overall Choice Given Others' Use	Page 29

Representative Samples of Feedback

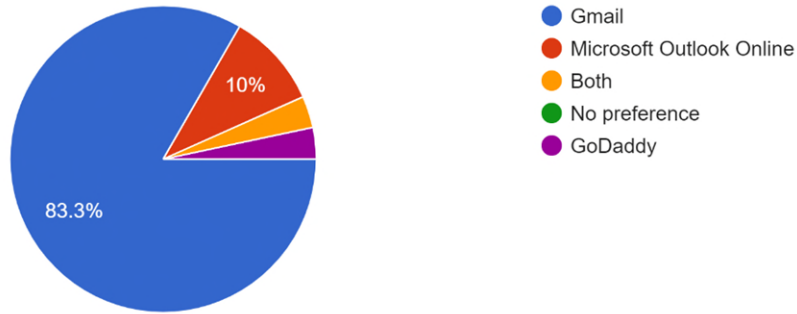
Member Feedback	Page 30
Staff Feedback	Page 32
Member Feedback about Executive Committee Decision	Page 40



Member Feedback- Email and calendaring

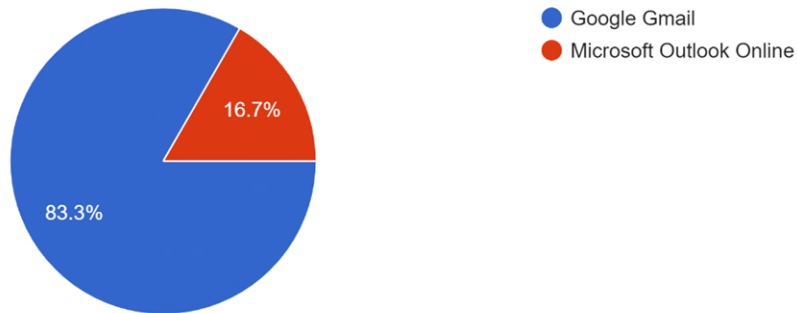
Which email platform do you prefer?

30 responses



If you had to choose between Google and Microsoft for email and calendaring, which would you choose?

30 responses

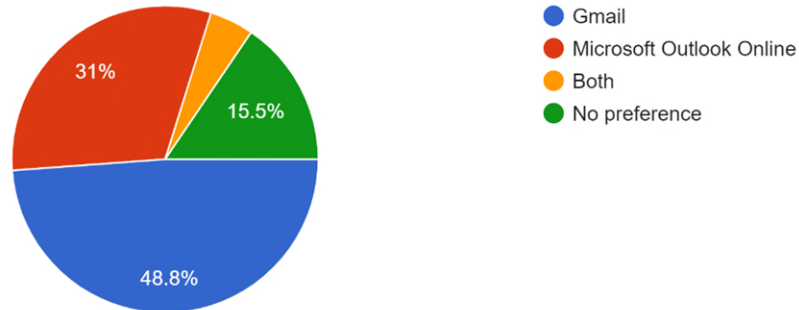




Staff Feedback – Email and Calendaring

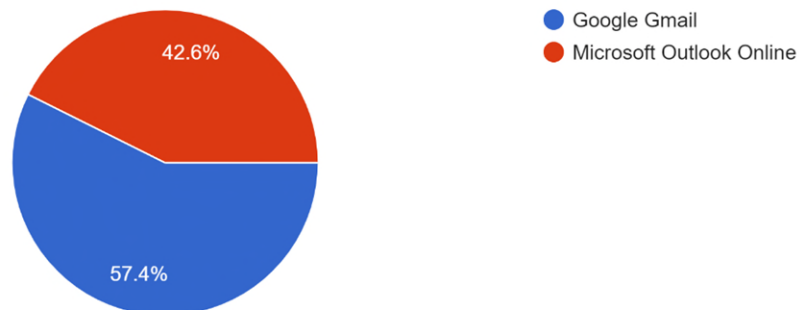
Which email platform do you prefer?

129 responses



If you had to choose between Google and Microsoft for email and calendaring, which would you choose?

129 responses

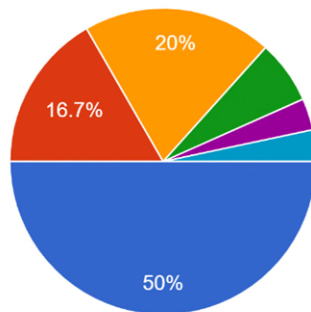




Member Feedback – Word Processing Applications

If given the choice, which of the following tools would you use for collaborating with stakeholders and drafters in drafting a bill or writing a memo?

30 responses

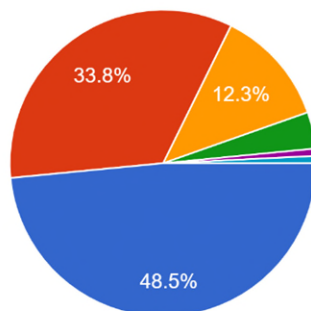


- Google Docs
- Microsoft Word
- Both
- No preference
- Google Docs for a Memo, though Adobe is easiest for making edits to bills
- depends on tech saaviness of people w whom I'm working. Experience has shown that too many collaborators makes a mess of the comments & trac...

Staff Feedback – Word Processing Application

If given the choice, which of the following tools would you use for collaborating with team members, external stakeholders, other legislative ...e departments, and others for writing a document?

130 responses



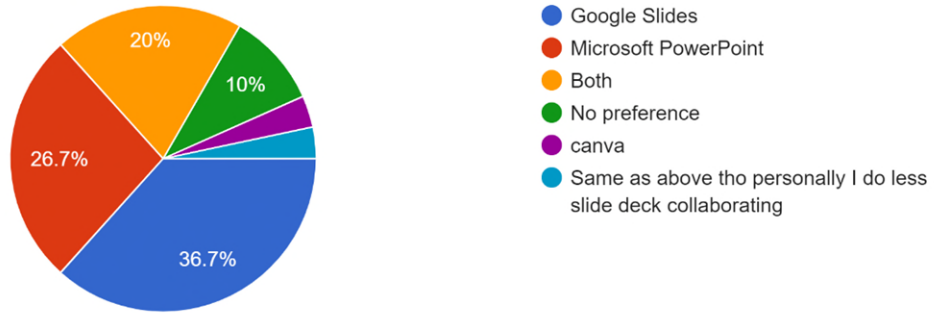
- Google Docs
- Microsoft Word
- Both
- No preference
- I would use Google Docs in limited applications only. Using a shared document with legislators and external...
- NOT google docs! We need to work from static documents too often, and people who use google docs just don't...



Member Feedback – Presentation Applications

If given the choice, which tool would you use for collaborating with others to develop a presentation?

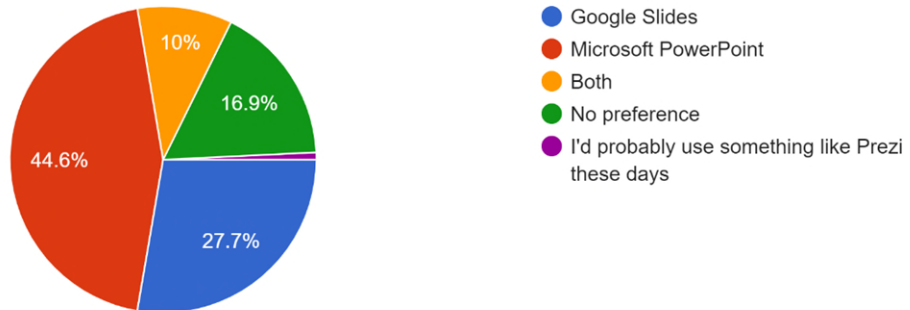
30 responses



Staff Feedback – Presentation Application

If given the choice, which tool would you use for collaborating with others to develop a presentation?

130 responses

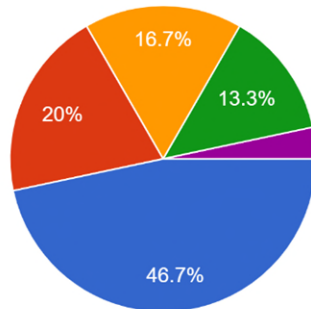




Member Feedback – Spreadsheet Applications

If given the choice, which tool would you use for collaborating with others to work with charts and data?

30 responses

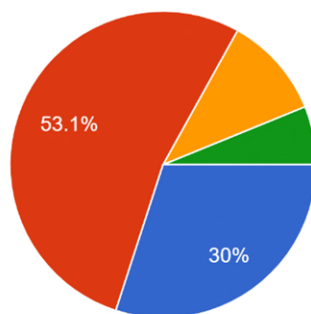


- Google Sheets
- Microsoft Excel
- Both
- No preference
- I am much more adept at Excel and it has functionalities gS still doesn't, tho for sharing (vs modelling) gS is probably easier.

Staff Feedback – Spreadsheet Application

If given the choice, which tool would you use for collaborating with others to work with charts and data?

130 responses

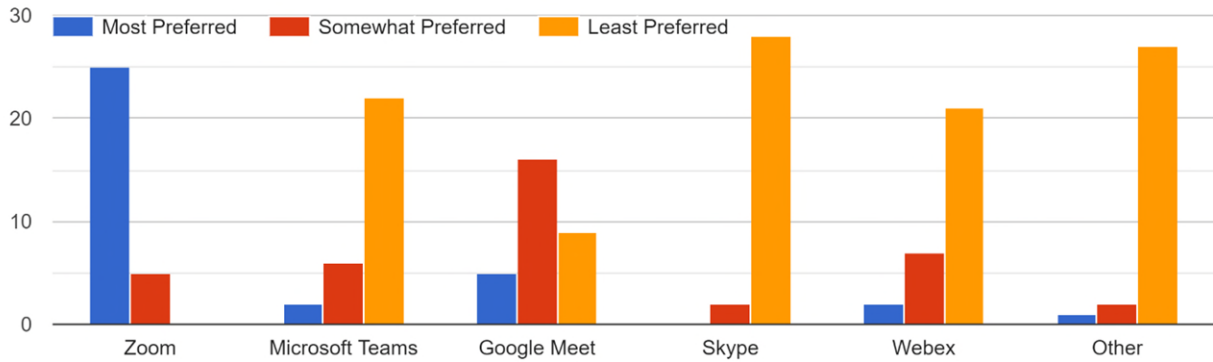


- Google Sheets
- Microsoft Excel
- Both
- No preference



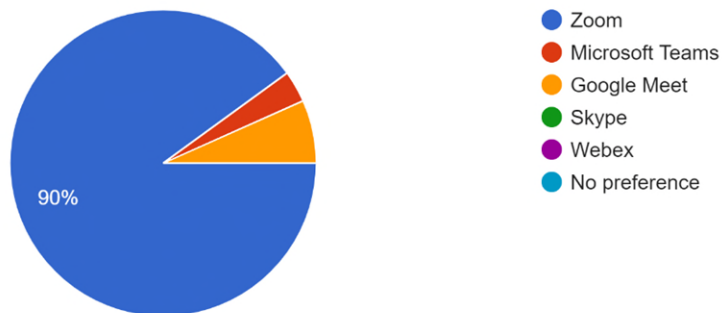
Member Feedback – Video Conferencing Applications

Please rank these video conferencing platforms based on your preference.



If given the choice, which conferencing platform would you prefer for meeting to collaborate on a bill?

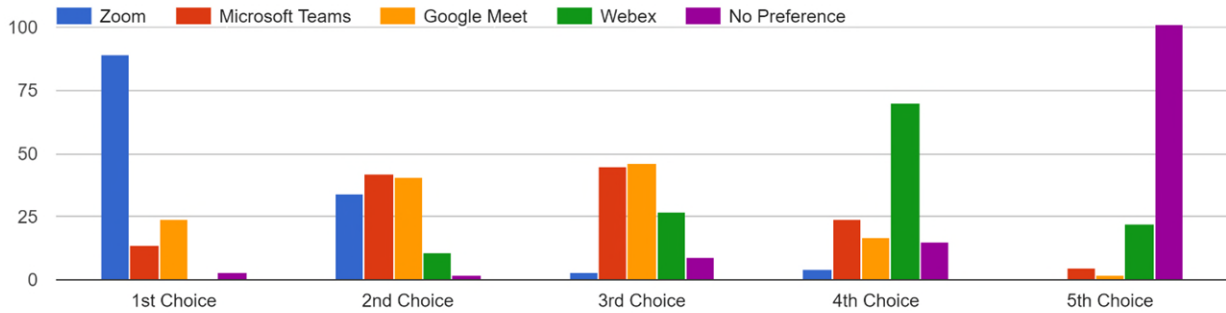
30 responses





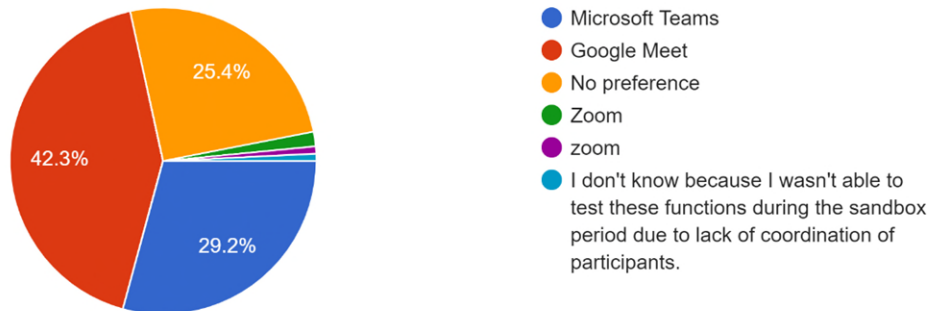
Staff Feedback – Video Conferencing Applications

Please rank these video conferencing platforms based on your preference.



If you had to choose between Google and Microsoft, which conferencing platform would you prefer for meetings?

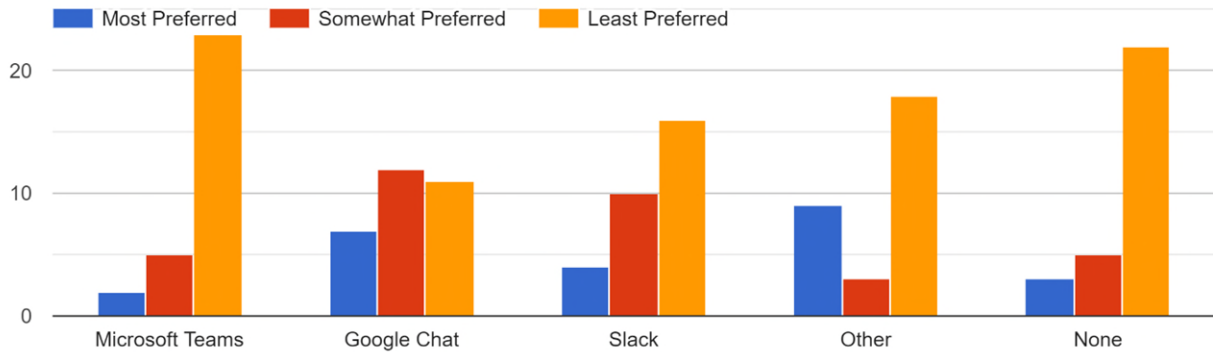
130 responses





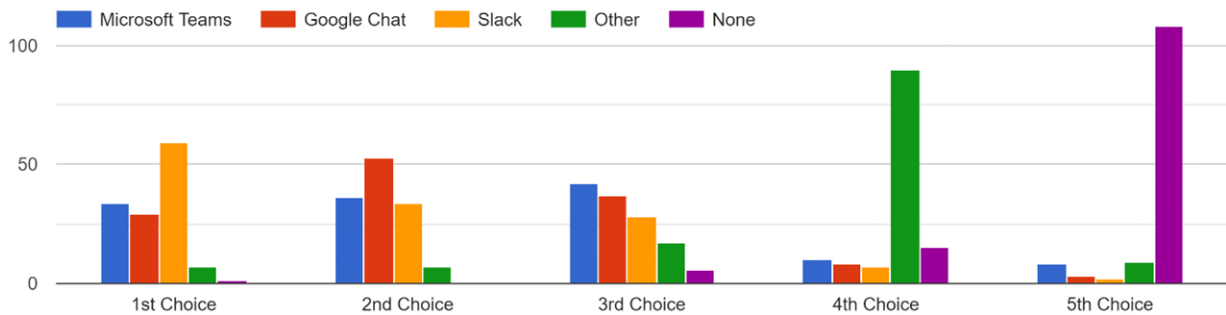
Member Feedback – Chat Applications

Please rank the tools you would use for instant messaging and communication with legislative staff, and other legislators.



Staff Feedback – Chat Application

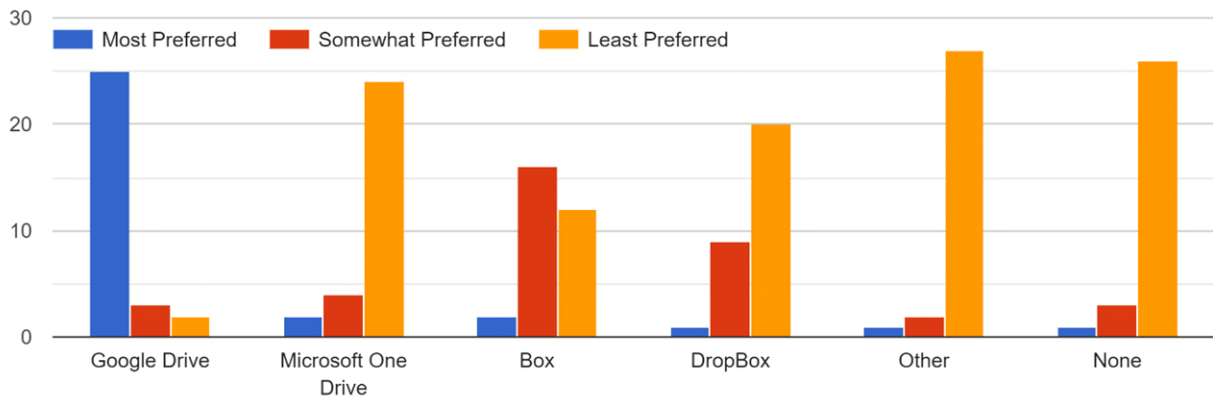
Please rank the tools you would use for instant messaging and communication with legislative staff and legislators.





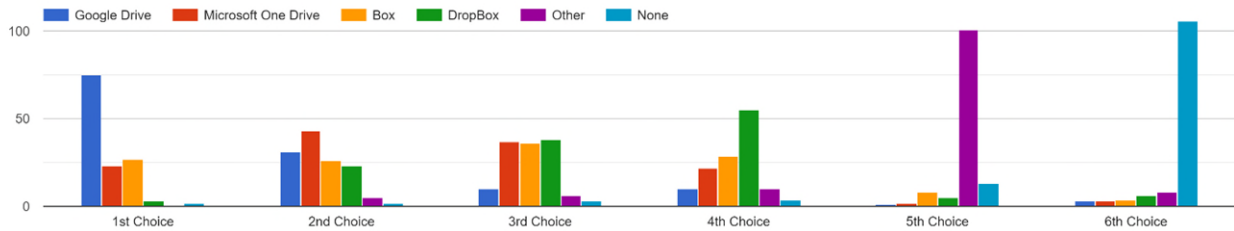
Member Feedback – File Storage and Collaboration Applications

Please rank the tools you would use for file sharing and collaborating with legislative staff, other legislators and external stakeholders.



Staff Feedback – File Storage and Collaboration Application

Please rank the tools you would use for file sharing and collaborating with legislative staff, legislators and external stakeholders.

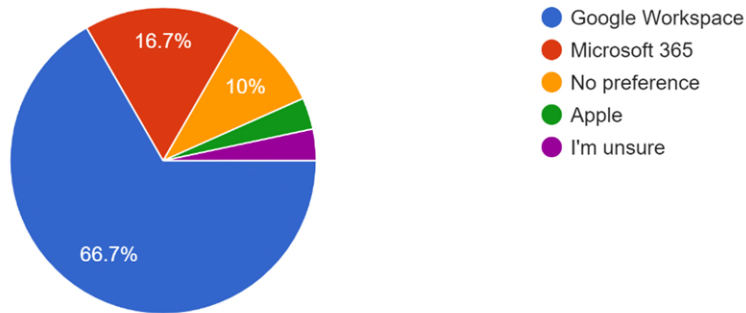




Member Feedback – Overall Choice for Collaborations

Which overall suite of productivity tools do you feel offers a more advanced, seamless way for legislators, legislative staff, and external collaborators to work together?

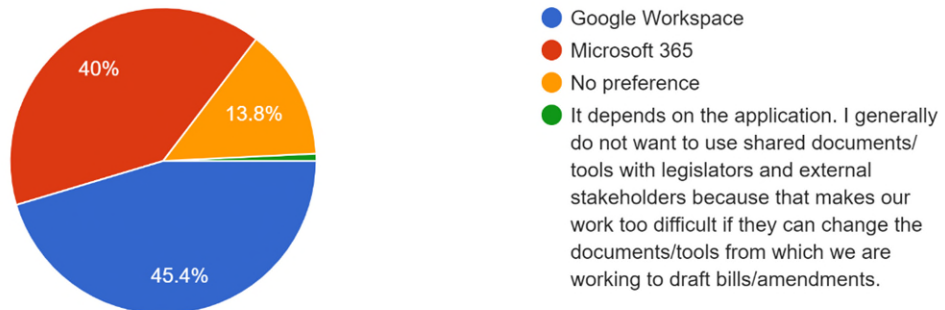
30 responses



Staff Feedback – Overall Choice for Collaboration

Which overall suite of productivity tools do you feel offers a more advanced, seamless way for legislative staff, legislators, and external collaborators to work together?

130 responses

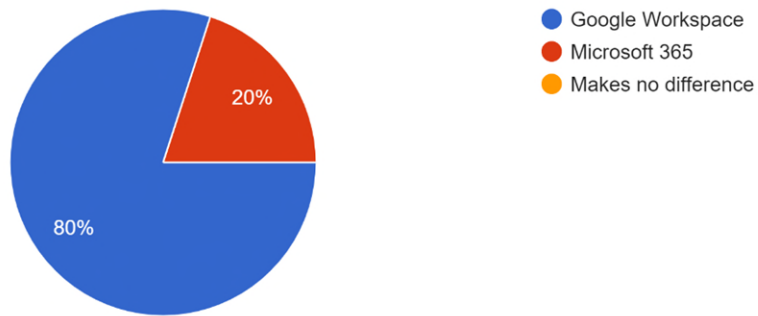




Member Feedback – Overall Choice for Team

Other things being equal, which productivity suite would your staff find more appealing?

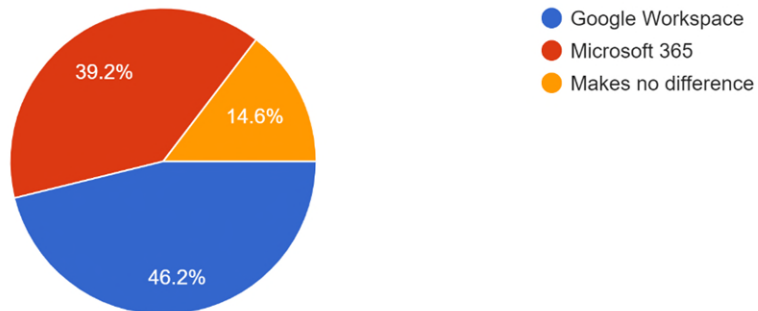
30 responses



Staff Feedback – Overall Choice for Team

Other things being equal, which productivity suite would your team find more appealing?

130 responses

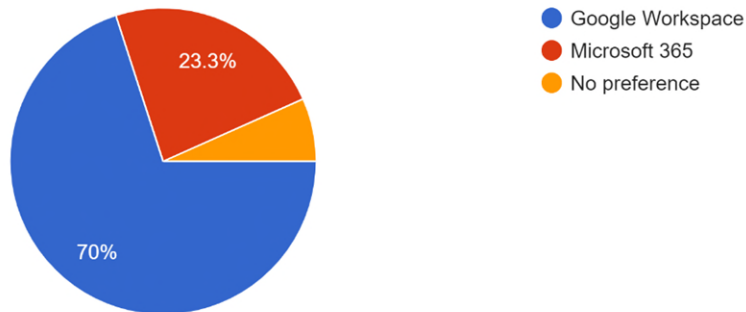




Member Feedback – Overall Choice Based on What Others Use

If you knew most other state legislatures, the CO Judicial branch and Secretary of State's office use Microsoft 365 while the executive branch uses Google Workspace, which product would you prefer to use?

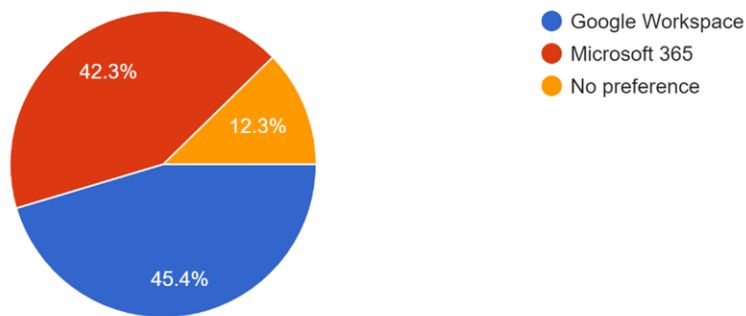
30 responses



Staff Feedback – Overall Choice Based on What Others Use

If you knew most other state legislatures, the CO Judicial branch and Secretary of State's office use Microsoft 365 while the executive branch uses Google Workspace, which product would you prefer to use?

130 responses





Member Feedback – Representative Sample of Comments

I have moved on with my own domain and happily live within Apple's product line, including calendar. Apple interfaces well with Microsoft products. I will not be using any Google products.

I appreciate that M365 is a major option in the cloud space. I just have barely used it, personally. It's possible I could be convinced it's the better option than google.

I have a slight preference for using Google because I am more proficient in that suite. I have used Microsoft in the past and did find it more cumbersome. I think being able to more efficiently collaborate with entities outside of the legislature that use Google make it the more preferable platform. That said, if Microsoft really outweighs Google in a number of factors, we'll be fine using that system.

Microsoft word and excel are absolutely necessary for my daily job. But, I use Gmail for my email.

Google, is currently my vendor of choice for email and collaboration. I prefer to use it if the State is going to purchase one.

All of Google's tools work with each other well, and Microsoft Teams and all that doesn't even come close to that level of functionality

If staff don't have access to similar systems, it will create issues

Outlook is a bit more user friendly than Gmail.

I use google workspace for everything else in my professional life.

I strongly favor Google products over Microsoft and think many people will just continue to use Google if we go with Microsoft as an institution

I've been using Google my entire time at the legislature, but I've had to pay for the storage myself, personally, just to be able to do my job. It's the easiest platform for my entire staff to work together, both in person and remotely. Everything I have is already set up for Google and I would not change at this late stage.

Most of us have been using Google products because they're free and we need to use something which hasn't been covered. Transitioning to Google would be easier because of this. Additionally, in working with stakeholders, they pretty much all have access to Google tools



which is important. Having OLLS and LCS able to use Google as well would be amazingly awesome.

If we switch to Microsoft, I likely would not use it. I am too used to Google at this point and have all my other work (campaign and other job) on Google.

I am old school and like to stick with what I am familiar with

Our office uses a software called ClickUp for task lists, follow up, tracking and project (legislation) management and it's been incredibly useful, and it links directly to google suite products

Good idea, otherwise, we will be locked out of our email when are email is full.

whatever it is it needs to work with a MAC

I think we should be cognizant of cost

Could we still use our own Google suite that was pre-existing?

I cannot stand Microsoft 365. Google Workspace is the superior product. Furthermore, Google Workspace has monopolized the education market (K12 and higher ed) so younger legislators, staffers, and other users would be more familiar with Google Workspace. Additionally, every computer, phone, iPad, tablet, etc. can access Google Workspace anywhere. However, this is not the case with Microsoft 365 (I think). I know legislators receive a laptop and iPad, but we would have to equip all legislative aides with the Microsoft 365 package on their personal laptops if we were to go the Microsoft 365 option. However, I am strongly against Microsoft 365 and strongly supportive of Google Workspace. Furthermore, every legislator has a separate email/system for other jobs and/or their campaign, most of which is on Google Workspace. Adding an additional email/calendar with a whole different system would be very cumbersome.



Staff Feedback – Representative Sample of Comments

Excel is not possible with google. Please use Microsoft

Ease of use and speed of transition are top concerns.

There are some notable disadvantages to MS 365 surrounding cost and staffing requirements. I have heard security is a concern with Google. Otherwise I strongly prefer Google since we already have collaboration issues with the Executive Branch requesting us to use personal Gmail accounts to communicate, which is a security concern in and of itself.

Leggo goooogle

Microsoft is easier to use than Google.

Google Workspace is more digestible since most people are familiar with its interface excel is a must have for financial auditing

I mostly selected Google Workspace as my preference, due to the number of executive branch agencies, lobbyists, or other people who share documents with us for fiscal note purposes that we are currently unable to access or have to use our personal gmail accounts to access. This would significantly upgrade our ability to collaborate with state agencies. Aside from that, I have used Microsoft Outlook before and find it to be very user friendly. It would be a great replacement for Notes. I would also note that fiscal notes and economics both have a lot of excel files. Some could easily be added to Google docs, but others might need to stay in Microsoft excel for internal use, even if we start using Google platforms. I don't know exactly, but it would be important to discuss this with Bill Z and Greg Sobetski as part of the decision making/transition process.

Microsoft has decades of demonstrated trust with enterprise data and users. Google pivots every time its old policies stand in the way of its bottom line. There is simply no reason to trust Google with sensitive government information. They'll exploit it eventually. When Google dismissed its promise to "do no evil" the only conclusion is that it intends to do evil now.

I have more experience using Google Workspace, so I lean in that direction. I'm sure Office 365 works just as well, so I will certainly not be upset if we choose that option. I also feel we cannot ignore the fact that the disabled community strongly prefers Google's accessibility features.

I prefer not to work with Google products given their poor track record on data privacy. Since their primary revenue is generated via advertising their business model incentivizes them analyze any data they are given.



I think that Google Workplace is the best option. While both have great functionality I think the biggest difference is in the user experience. I've found that google tools have a very carefully crafted, simple user experience. The Microsoft competitor tools usually feel more complex and it seems consistently harder to find the right setting or menu item. In my opinion, that makes it harder to do efficient, consistent work.

Google tools have also always been cloud/browser tools while 365 can feel like software that was retrofitted to work in a browser. All that said, Microsoft 365 is a great set of tools and would be a huge improvement too. I think either would really help us move to more modern workplace practices.

Please choose google!

Legislators more commonly use gmail over outlook

Our team is almost exclusively utilizing Google functions.

More important to me than deciding between Microsoft and Google is that we move away from the current systems.

Google docs and sheets are so easy to use and so many other people, not just in the leg, but in general use google for their email and docs, it makes it so easy to share with others. Even if we go to Microsoft 365, I think moving to cloud based is AWESOME

I find many of the Google products easier to use, but the Microsoft ones are often more powerful. I also like the look/feel of the Microsoft email calendaring more than the Google ones (for personal use, I stopped using gmail long ago!). I like that Microsoft Excel/Word/Onedrive can allow collaboration on basically full-strength versions of the products, especially for calculations in Excel or for LCS research products like memos in Word, as well as the mixing of online/collaborative and offline, desktop use, but they are harder/more confusing to use. Google Sheets is best for informal tracking/lists etc. and Google Docs is best for jotting things down rather than publishing real documents. But if we retain offline Microsoft Office, maybe this limitation in Google Docs/Sheets is acceptable. I think I have a slight preference toward Microsoft, but think (anecdotally) that most staff would be more comfortable with Google.

We need to be able to maintain confidentiality first and foremost with any system that we use. And, as noted above, I do not want to have to rely on shared documents/tools with legislators and external stakeholders because the ability to have multiple authors/editors in the documents in which we work would make it very difficult for us to draft bills/amendments.



I am not all that familiar with Google Workspace, but have had some experience with it while interacting with the executive branch. I will say that I am not impressed with Google Meet - the layout and functionality isn't ideal or user-friendly. I really do like the idea of sticking with Microsoft, which is a product I am more familiar with.

Given the vast majority of those I work with regularly, including legislators, aides, executive branch agencies, external stakeholders, use their gmail as their main system, Google would make the most sense for my day to day. The legislators I work with the most prefer to collaborate via google drive and have their own Gmail system already set up. If we moved to Microsoft, I'd likely still have to continue to use my personal gmail to continue to work with legislators how I currently do through tracking bills, communicating about agenda items, etc. I also get replies from a gmail domain from legislators far more often than I do any other domain. I think it makes the most sense to go with what the majority of people are already using.

The needs of the OSA may differ slightly from that of other legislative branch agencies due to the heavy analytics and publications, so I think as far as workflow within our office having access to Excel and Word is crucial. If we can leverage the concurrent editing and document management of Office365 that would be ideal, or having the ability to use PowerBI would create a lot of efficiency and upgrades to our work products. The Google options (sheets, docs, etc) just don't have the same functionality and seamlessness to them.

Our office has been using Google for our documents for several years now (since 2020 when we had to start working remotely). We now have lots of documents in Google formats. We also never receive any training on how to use these products, so one that we've been using is preferable to having to guess and learn another. I've only used Microsoft 365 at home and I haven't quite figured it out yet.

Some of my answers are bad or "no preference" because I am not terribly familiar with both google and Microsoft systems. I used Microsoft teams for one professional development program, but have not otherwise used it. Most of my responses are based on that the executive branch stakeholders often want to collaborate on google docs and I don't have experience collaborating on Microsoft; it may be better, but I don't know. Similarly, I think that excel and powerpoint have more functionality and are easier to use than sheets and slides, but I have not had occasion to collaborate with others on any other those. The google options may be better for collaboration. I would be happy with any system that allows for better collaboration with other legislative service agencies and other stakeholders (keeping in mind that I frequently work with the AG's Office and Judicial Branch), including chatting features, especially with staff in other legislative service agencies and partisan staff.

I think Outlook is more professional system, especially for scheduling and integration with all the office products we already work with.



Teams is terrible in my experience and I would want to avoid at all costs.

Very familiar with Teams and outlook. But I use mostly google type products (besides hangouts and conference call). Teams is just so much better than most of the google products, but I believe people will have easier time learning google products (not sure if one is cheaper than the other either). Hangouts was not a good messaging tool when I used it 3-4 years ago.

As a member of the OSA, having a system separate from the executive branch, it ensures the auditor cannot manipulate the Department's data. This also creates some issues when needing documents, as we often time need to remind and re-request documents from the executive branch.

I am a former executive branch employee of two different state governments and have used both Google and Microsoft 365 and I much prefer Google. I think Google is unmatched as far as being able to collaborate.

Most people I interact with use Microsoft for office/work needs. Using same platform as them is important to me for ease of collaboration and product familiarity. I feel like most people have microsoft accounts or experience with microsoft word, ppt, etc., while that's not necessarily true for Google.

I have a strong preference for Microsoft because it best integrates with our use of the Office suite for most of our work products. In my experience, migrating files between Microsoft and Google applications always results in aesthetic losses and usually results in functionality losses. My team uses hundreds of Excel workbooks in our normal workflow, and migrating these to Google would be prohibitively difficult. We would need expert support from LIS or a contractor in order to accomplish this migration. It is not something our team could handle with our current resources.

I do like the idea of using Google to collaborate with executive agencies. I would be willing to use Google solely for communications, provided that all of our products continue to be built and maintained in Office.

I'm mostly not attached to any one specific platform; I just know Microsoft better and am more comfortable with it.

I don't have concerns about either product for email and calendars, I think they both work well. I have had problems with collaborative documents in both formats, so I don't know which is better, and my limited experience with both Teams and Google Meets has not been good. Microsoft Office allows much more sophisticated document design, and having just gone



through the process of updating our styles and templates, I would be really angry if we had to give that up. I don't mind learning new things, I just want all of it to work!

I found Microsoft365 more comparable to what we currently use and would be easier to transition to. However, I prefer using google docs and sheets which I probably would still plan to do regardless of if we use Microsoft365.

We use Excel heavily, so that is a major factor in which suite I lean towards.

While I prefer Microsoft Word and Excel for internal work products, I prefer Google for email and collaboration. Having Drive and Google Docs would make our work with state agencies so much more streamlined - as such, I would offer the Fiscal Notes Team be testers if that would be helpful.

Google is the most accessible.

I think this is a great idea!

Being able to easily exchange files and information with the executive branch would increase my productivity. Not being able to do it easily now is a hindrance.

I have a personal Google account, but prefer Microsoft 365 products.

This change is of critical importance. The expanded functionality and security are much needed, but the overall most compelling reason to make this change, to me, is the ease of use. Microsoft and Google are modern, (generally) easy-to-use tools that can be highly customized/adapted to suit the specific employee using them. I believe this change must be made, and as soon as possible.

For each of the individual products, I think that the Microsoft version is better.

A cloud-based enterprise email system will bring less maintenance, less training, easier configuration and onboarding, more integration opportunities. Both Google Mail and MS Exchange are good enterprise email systems.

I have used Microsoft 365 in other work environments and have been impressed with how seamless I was able to move information from one application to another; an e-mail from outlook could become a note in OneNote with a click of a button, a word document could quickly be sent over e-mail as an attachment or raw text, users can collaborate on documents in real time using word and excel if settings are properly configured.



As someone who has regularly used both suites in both an academic and professional context, the ease of use between Google programs (i.e. the "ecosystem") is simply easier to use and more intuitive than anything that Microsoft 365 offers.

used to work in Exec branch and communication seemed way more effective and efficient using Google. The budget team at HCPF still used excel spreadsheets as they are pretty necessary for the job. My ideal situation would be email/calendar service and full productivity suite options on google with the continued option to use MS Office for our economic forecasting work and fiscal notes

I really want to stop using HCL Notes

I've used Microsoft 365 at previous companies, but I have never used Google Workspace. I'm most familiar with the tools and applications of Microsoft and have found them to be easy to use and collaborate with other coworkers.

We used Microsoft 365 when I worked for CU Boulder, and it was really good for collaborative work (like what we do at LCS) both within a department and with interdepartmental communication/collaboration.

Google workplace is far superior to Microsoft 365 in every single way.

Keep things simple and go with Google or Best of breed solution

I prefer Microsoft 365, but we have to exchange many documents with Executive Branch so would like Google Drive for those interactions.

It would be nice to be on the same platform that OIT utilizes.

Our entire office exclusively uses Google Suite already, as does the House.

I really think that either Microsoft 365 or Google Workspace are pretty equal. My notes are that the executive branch and many of the legislators/partisan staff already use Google, so that would help communication and ease of transition. However, I do not see staff writing fiscal notes or bills in Google Docs or the forecast moving to Google sheets, so the Microsoft 365 integration would be good for internal staff working and productivity.

We have unique business requirements that may only be fulfilled by choosing "best in breed" products already in use. (Box, Zoom, Slack) Future licensing fees for these products should be considered. That said, Google Workspace is a much more affordable option which would allow more funds to be used for the "best in breed" products.



My responses are mostly 1) the executive branch uses Google, so that would enable collaboration that we currently lack; and 2) I've never used Teams/365 so it's hard to rate. Even today I am trying to wrangle a document on Drive with an agency, and having a Google account would make that trivial (I hope).

Both products have accessibility support and shortcomings. Google has better device independent support and enables direct accessibility feedback

If I have to choose between Google and Microsoft, I would go with Microsoft.

N/A - largely prefer the functionality (and familiarity) of Microsoft email and calendaring, but being able to instant message the executive branch would be huge! Also, I feel like Google has better tools for real-time collaboration on docs/presentations/etc. across entities.

I do not have a strong preference between google and ms products, but I really think it's important that we all be on the same platform. It is very frustrating that a portion of the legislative community basically exclusively uses Google products and insists on interacting through those tools, and the rest of us need to use personal Google accounts to do our work. Also, many, many things are stored in Box, and so if we switch from that, we need a rock solid migration plan.

Gmail has the best search functionality, which contributes to productivity.

Gmail is very customizable with all of the add on/ Really help with organization. Contacting agencies is harder than legislators. Google Chat would really help

I have not had the best experience with Google Meet in the past. Maybe the paid/ business version (assuming there is one) is better, but I have found that the version that is free with a Google account is blurry and laggy far more often than Zoom. Even if we move to Google Workspace, in my opinion we should still use Zoom for video conferencing.

My responses are based mostly on the fact that I find Gmail difficult and frustrating to use, I don't like google sheets, and I hate google docs. I have to admit that I don't have a lot of familiarity with the other tools offered by Google or Microsoft, so I am not answering this survey as an entirely educated person about either product.

Since my answers are based almost entirely on familiarity, I am unfamiliar with advantages/disadvantages of each platform in most cases. But in my experience, Sheets is far less productive for our needs than Microsoft Excel, so this would be a significant impact for our team's productivity.



AG's Office also uses Microsoft, which is why I am more familiar.

I am familiar with and already use Google Workspace for work and personal purposes and think it is a great tool for collaborating on various types of documents between team members and other agencies

Biggest concern would be any increased risk of confidentiality/privacy (unreleased audit reports, reports with confidential findings, etc.).

Good luck! This is a knives edge decision both products would more than meet the needs of our organization. I would tip a fraction of a point in the Microsoft column simply because of familiarity and overall ease of use. The ability to have desktop versions of these applications is appealing.

The minimal learning curve and easy of transition for historical records and files puts Microsoft 365 as the clear winner.

I would use Google Docs in limited applications only. Using a shared document with legislators and external stakeholders can make our work very difficult as we need to work from static documents to update bill drafts/write amendments without those documents being changed during the drafting process.

NOT google docs! We need to work from static documents too often, and people who use google docs just don't get that.



Member Feedback – Agree with Decision to Provide Enterprise Email System to Legislators

There were 30 responses to the above question. The responses were positive in general. A sample representation is provided below.

Not necessarily - is there a need to do so?

I am not sure. I don't know why we need it if we have been using our own emails that pass through the state address for so long. What problem are we trying to solve?

Yes! Absolutely. Thank you for your hard work on this.

Yes. It should be easy for legislators to receive and send emails from the same address.

I think there are advantages here. Any system ABSOLUTELY must take into account applicable CORA / OML laws & guidance, especially after the settlement earlier this year. Honestly until those issues are resolved, much of the normal functionality of a collaborative software stack will be underutilized out of fear of liability, thus wasting a fair bit of the outlay.

Yes & No, because then they have access to it at their fingertips.

Not sure I see the necessity

I don't have an opinion

I hope that it will be helpful to us. Thanks!



Appendix B: Stakeholder Analysis Feedback

Google – Combined Comments

I don't like always having to work in my browser. It's so easy to get mixed up with all my other tabs for things. I would enjoy a product that has a desktop version or an app.

Overall it was hard to get a real feel for the application because I wasn't able to test it in real time with real people. I believe the best advantage for Google is that a) people in the GA are already using it as a workaround for HCL Notes/CLICS and b) the rest of the state uses it and would be easier to share files and do work with Executive Branch agencies. I think Google was created to browser-based, so it was easier to use in a browser than Microsoft. I think younger folks we employ would take to Google easily (though I suspect the same for Microsoft). I do actually think I would prefer Google, but I'm sure it has limited interface with our Microsoft products.

I didn't find anything in Google that I liked more than Microsoft overall. Some of their features, were a little more fun such as adding icons and having two signatures.

I found the calendaring function confusing.

In general, I do not like Google, so I would prefer we don't use this platform.

It's what I use for personal email, but possibly because of that, I'm prejudiced to think Google = personal and not professional. I could get used to it in a professional context.

Would be better than Domino/Notes, but ultimately not as good as Microsoft.

Google Drive is amazing to use and I loved the layout. I also preferred the way that when files were shared - in chat, email, etc. - it previews the file rather than just lists the name. I think this helps visual learners.

Most Mail, Calendar, and Chat features were just inferior to the Microsoft products. Features were tricky to find and use, and I felt that the UI suffered.

Despite what we choose to do, there will be a learning curve. However, I think the learning curve with Google is much greater than Microsoft. Google has opted for a very streamlined look with icons, but if staff don't know exactly where to go or what an icon stands for, they will need to Google how to get from A to B because I didn't find the software as instinctive as it should be for such a streamlined approach. Some of the processes or tasks were downright confusing to work out on Google, and I think people would get frustrated pretty quickly with the "one route"



way to accomplish a task in Calendar or Gmail (whereas Microsoft provides several options for people to get where they want to go). I found myself needing to constantly search to find a function, as the function was not readily available or easy to find.

Microsoft – Combined Comments

I found that since I wasn't using an app on my desktop I kept accidentally closing all the windows

Overall it was hard to get a real feel for the application because I wasn't able to test it in real time with real people. My thoughts about Microsoft are that I like how it works well with all the tools we already use (Word, Excel, etc.). It would be easy to learn and pick up. I do think for the work environment that Microsoft might have the edge as it has less limitations than Google. I think I would have liked it better if I had access to downloading the apps, so I wouldn't always have to work in my browser. Everyone I know who uses Microsoft 365 complains about it, but I didn't experience too many bugs, but that might be the limits of a test

I like the email and calendar functions. I don't have enough experience with the chat or meetings function. I didn't like the Drive function.

I had challenges getting started because of the prompts to scan a QR code, which my phone couldn't read. I also do not like having to enter my personal cell phone into a work application, so I didn't opt for that to verify my account. It was very frustrating at first getting started because of these two things.

I think overall I would prefer Microsoft because of my general distaste for Google. Feels more professional and the UI has less friction than Google

Prefer the look and feel of the UI over Google and think it might be a better fit overall. Mail, Calendar, and Chat were phenomenal. Looked great, sensible layout, loved the banner options and email/calendar customizability. Liked that messages from meetings saved in Teams. Teams felt easy to use and was more "fun" to use than Google Chats. OneDrive, in my view, does not hold a candle to how well Google Drive works and displays saved material.

Microsoft was the clear winner for Mail, Calendar, Chat and Meetings. The features were clearly designed with user preference in mind and I loved how easy and natural their products were to use. There would be less of a learning curve, I think, than with Google, as several of the features (planning meetings, updating wfh availability, etc.) were just an upgrade from Lotus Notes aesthetically but would be simple to use for staff already used to Lotus Notes. I loved the "feel" of using the Microsoft products; there were many options to customize emails/meetings/settings to your preference and need, so that each product became more and



more intuitive for the user over time. Most items on the task list looked better with Microsoft and were quicker to use. I went into this open-minded, as I have used Outlook in the past and currently use Google every day in my personal life, but I could not believe at how lopsided the analysis was in Microsoft's favor. I think we would be doing a real favor to our staff by choosing Microsoft (in all its familiarity and convenience) over Google.

Detailed feedback from a thorough tester

Conclusion: Microsoft handily beat out Google on the whole.

More specifically, the winner allocation was as follows:

Mail: MICROSOFT (Tally | Microsoft 16 | Google - 8 | Both - 14)

My summarizing comments: Microsoft was much simpler and more intuitive to use than Gmail. There were many ways to do something (versus one way in Gmail) and the layout made more sense to me. Microsoft also had far more options to customize emails and I preferred the banner options more than the ones in Gmail.

Calendar: MICROSOFT (Tally | Microsoft - 14 | Google - 1 | Both - 3)

My summarizing comments: Microsoft was stellar on the Calendar tasklist. It was sensibly formatted, easy to use, and aesthetically appealing. For tasks the staff will have to change frequently (meeting rooms, work from home schedules, etc.) the format resembled Lotus Notes and was easy to update, which I think will make the transition easier. Several Google functions were hard to find and I needed to "Google" where to go within Calendar because the formatting didn't feel very intuitive. Changing remote/work-from-home availability was a real headache and I think staff would "forget" to update it when needed because it is harder to use than Microsoft's Calendar.

Chat and Meetings: MICROSOFT (Tally | Microsoft - 14 | Google - 4 | Both - 6)

My summarizing comments: Microsoft's UI was much sleeker and more customizable than Google's. Editing statuses and adding features to chats was easier to do and more varied in Teams. Microsoft Teams meetings also beat Meet out. On Microsoft, I preferred the display of shared screen/audience video size. Google did have cool accessibility features like the hand queue and tile pairing, but for me Teams was way more intuitive to use.

Drive or OneDrive: GOOGLE (Tally | Microsoft - 1 | Google - 8 | Both - 0)

My summarizing comments: Google Drive swept OneDrive on this part of the evaluation. Google Drive was clean, quick, and intuitive while OneDrive was much slower, clunkier, and more confusing.

Final opinion on Microsoft: Microsoft was the clear winner for Mail, Calendar, Chat and Meetings. The features were clearly designed with user preference in mind and I loved how easy



and natural their products were to use. There would be less of a learning curve, I think, than with Google, as several of the features (planning meetings, updating wfh availability, etc) were just an upgrade from Lotus Notes aesthetically but would be simple to use for staff already used to Lotus Notes. I loved the "feel" of using the Microsoft products; there were many options to customize emails/meetings/settings to your preference and need, so that each product became more and more intuitive for the user over time. Most items on the task list looked better with Microsoft and were quicker to use. I went into this open-minded, as I have used Outlook in the past and currently use Google every day in my personal life, but I could not believe at how lopsided the analysis was in Microsoft's favor. I think we would be doing a real favor to our staff by choosing Microsoft (in all its familiarity and convenience) over Google.

Final opinion on Google: Despite what we choose to do, there will be a learning curve. However, I think the learning curve with Google is much greater than Microsoft. Google has opted for a very streamlined look with icons, but if staff don't know exactly where to go or what an icon stands for, they will need to Google how to get from A to B because I didn't find the software as instinctive as it should be for such a streamlined approach. Some of the processes or tasks were downright confusing to work out on Google, and I think people would get frustrated pretty quickly with the "one route" way to accomplish a task in Calendar or Gmail (whereas Microsoft provides several options for people to get where they want to go). I found myself needing to constantly search to find a function, as the function was not readily available or easy to find.



Appendix C: Additional Resources

Security Resources

- NIST SP 800-207
<https://nvlpubs.nist.gov/nistpubs/SpecialPublications/NIST.SP.800-207.pdf>
- Google Workspace security whitepaper
<https://workspace.google.com/learn-more/security/security-whitepaper/page-4.html#encrypting-data-in-transit-and-at-rest>
- Microsoft Defender for Business
<https://learn.microsoft.com/en-us/microsoft-365/security/defender-business/mdb-overview?view=o365-worldwide>
- Zero Trust deployment plan with Microsoft 365
<https://learn.microsoft.com/en-us/microsoft-365/security/microsoft-365-zero-trust?view=o365-worldwide>

Vendor-Provided Resources

- Google Provided Presentation – Security and Compliance
<https://coleg.box.com/s/38ipapolsgcmawbqys2y57ibpk514kep>
- Resultant Provided Presentation – Microsoft vs Google Feature by Feature Comparison
<https://coleg.box.com/s/7a9prrz1ycqbgjtjf5t8v6cfo01ibon0>