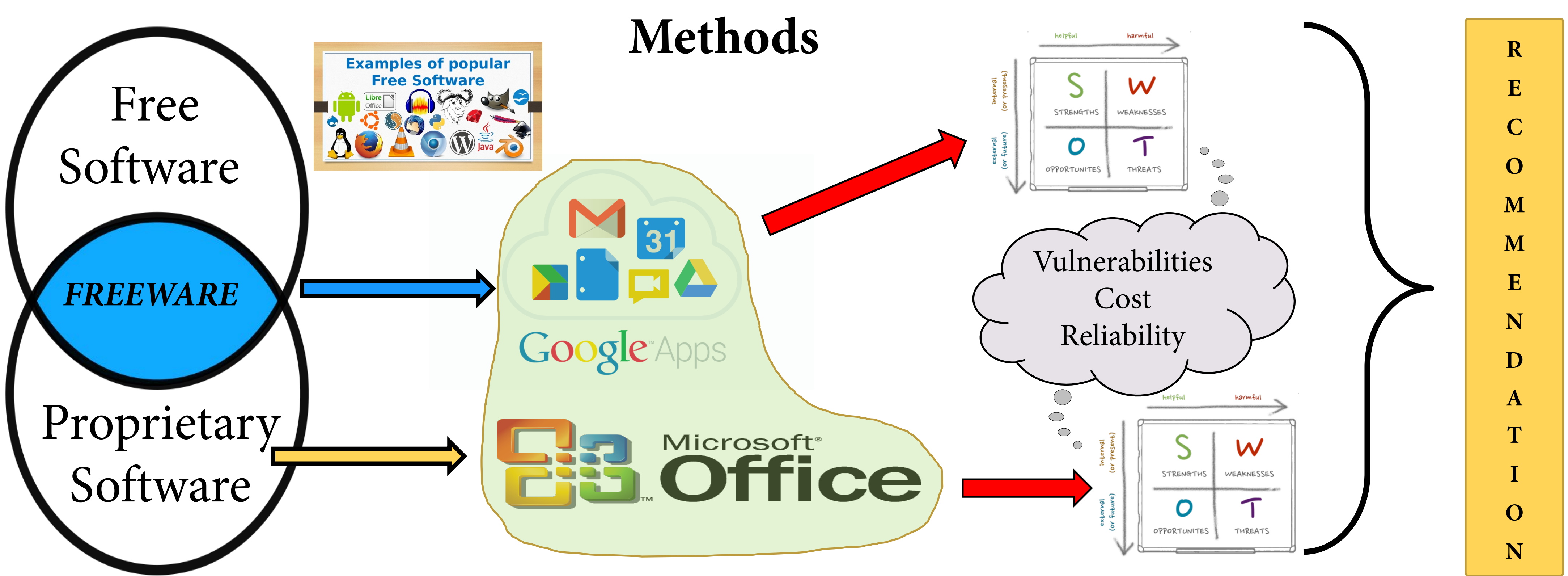


## Abstract

In 1998, the Department of Defense (DOD) Enterprise Software Initiative (ESI) was created as an official DOD initiative sponsored by the DOD chief information officer (CIO) to lead in the establishment and management of enterprise commercial off-the-shelf (COTS) information technology agreements, assets, and policies. This included software products such as Microsoft, Oracle, VMWare, and multiple others. In July 2010, Google announced the launch of Google Apps for Government, adapting Google's widely popular freeware for government agency usage. This study analyzes the proposed benefits of using freeware, specifically Google Apps, in the DOD in relation to reliability, cost, and security. The results of our analysis supported our recommendation to the DOD ESI to begin complete integration of Google Apps within DOD commands.



## Results

1. In what instances is it appropriate to use freeware as the primary productivity/mobile office software (i.e., Microsoft Office versus Google Apps)?

Google Apps, which is a type of freeware, is appropriate to use as the primary productivity/mobile office software in almost all areas of the DOD. Google Apps has proven to be reliable with its 99.9% uptime guarantee; therefore, it can be used in most areas that Microsoft Office is currently being used by average daily users. Google's two-step security verification and secure infrastructure makes it very reliable for users within the DOD. In areas where a more advanced application is needed by users who need technical functions to complete specific tasks, it would be appropriate to use Microsoft Office.

2. What are the relevant DOD cost savings for freeware integration and cloud computing?

Some of the relevant cost savings the DOD could experience with freeware integration and cloud computing include four major points: decrease in physical file storage requirements, adaptability to dynamic working environments, security, and robust collaboration tools. Google Apps meets those needs and provides them at a streamlined cost. With additional access to government and public third-party applications in conjunction with Google Apps, the possibilities for Google Apps as a leading productive suite are endless.

3. To what level is freeware supported?

The use of freeware can be supported within the DOD. There are currently over 30 government agencies that use Google Apps as their office productivity suite, and this number is continuing to increase. Google Apps "meets the most demanding government data security requirements, including FedRAMP certification and compliance with the Health Insurance Portability and Accountability Act of 1996 (HIPAA)" (Google, 2016a).

4. Are there any significant security threats while using freeware?

No software is 100% free from security risks; therefore, there are always going to be some threats to freeware. The DOD realizes that there are always some risks involved when using any kind of software. Google has identified some areas of concern, such as "cross-site scripting, cross-site request forgery, mixed-content scripts, authentication or authorization flaws, and server-side code execution bugs," and is actively pursuing resolution (Google, 2016e). Currently, there are no significant security threats found while using freeware.

## Recommendations

As long as the DOD and Google highlight the new features and time-saving methods, as well as ensure compatibility with other programs that rely on Microsoft, then a majority of the personnel may not be as opposed to the migration. The cost efficiency found with switching to Google Apps also assumes that the DOD would not renew its licensing contracts with Microsoft; therefore, until integration was achieved, there would be a double cost incurred.