Table of Contents

—
Overview / 3

—
Executive Summary / 4

—
Research Findings / 5

—
Final Considerations / 20

—
Respondent Profile / 21

—
About / 24
Overview

Purpose

Pressured by recent legislation and the cost-cutting measures of a new administration, federal agencies across government recognize that operating by the status quo is no longer sustainable. Advancements in cloud computing have opened up new capabilities to store, delegate, and retrieve information on demand through a scalable, secure environment. At the same time, the leaders responsible for driving this migration still face a number of obstacles in the journey: security concerns, cost and control, governance, as well as the problem of legacy IT.

In order to find out how federal decision-makers perceive these challenges and what they would like to see out of digital transformation going forward, Government Business Council (GBC) on behalf of Deloitte undertook an in-depth research study in November 2017.

Methodology

To assess the perceptions federal employees have regarding current cloud capabilities and data center consolidation, GBC deployed a survey to a random sample of government respondents in November 2017. Over 550 senior leaders responded, with 63 percent holding positions at the GS/GM-13 level or above (including Senior Executive Service and officers of equivalent rank). Respondents represent a variety of job functions, with highest input from program/project managers, law enforcement, technical/scientific specialists, and acquisition/procurement officers. At least 47% are supervisors who oversee one or more direct reports.
Executive Summary

**Cloud continues to gain traction, with cost savings a recognized benefit**

A majority of respondents say their agency has moved at least some or more applications to the cloud, and more than two-thirds say they now require some degree of cloud access to be successful at work. Most point to cost savings, improved efficiency, and expanded data-sharing as the top reasons for making the transition. Many respondents would like to see cloud provide database, analytics, and management tools going forward.

**Security, cost, and legacy IT are common obstacles to optimization**

The progress in reducing or optimizing existing data centers attracts little confidence from many. 45% of respondents believe their agency is behind schedule when it comes to reducing its data center footprint. Security concerns, cost, and difficulties configuring legacy IT are the most common impediments to this effort. Many still need assurance that on-premise data will be safely reallocated and that legacy IT can be sunset with minimal disruption to operations.

**Poor governance and limited communication keep many in the dark**

Many feel that strategy related to cloud migration and data center optimization has not been communicated. 47% of respondents feel that cloud governance is non-existent, and 71% report using an application on at least one occasion which fell outside the agency-approved IT toolkit. This lack of governance invites significant security vulnerabilities and logistical liabilities. While respondents can be spared of the technical minutiae governing cloud environments, they can also benefit from greater awareness of general strategy.
Research Findings

A majority of respondents cite progress to the cloud, but 39 percent have yet to migrate.

How would you describe your organization’s progress in moving towards a cloud computing environment?

- Not in the cloud: 25%
- Has plans to migrate, but no action so far: 14%
- Some applications have moved to cloud: 49%
- Majority of applications have moved to cloud: 10%
- Entirely in the cloud: 3%

62% of respondents say their organization has moved at least some or more applications to the cloud.

Percentage of respondents, n=360
Note: Percentages may not add up to 100% due to rounding
At least two-thirds of respondents depend on cloud access to complete work assignments

**Research Findings**

To what extent does your ability to produce successful work depend on having access to a cloud platform (i.e. access to shared network, office applications, etc.)?

- None: 32%
- Little: 22%
- Some: 25%
- Much: 22%

69% of respondents say at least a little degree of their work output depends on having ready access to a cloud platform.

Do you make use of cloud computing technologies (i.e. shared access to network, applications, etc.) to carry out your daily work duties?

- No: 57%
- Yes, occasionally: 28%
- Yes, frequently: 15%

43% of respondents identify as occasional or frequent users of cloud technology when carrying out their daily work duties.
Research Findings

Over a quarter of respondents use cloud for storage, applications, and network purposes

Storage, applications, and network are the most commonly cited uses of cloud computing currently in use by respondents. Among the items most desired for use in the future, database, analytics, and management tools rank among the top.

Overall, though, many respondents lack awareness of cloud’s versatility: 68 percent did not know of its association with SaaS, and 57 percent were unaware that cloud could facilitate mobile services.

68% of respondents say they did not know of cloud’s ability to host software-as-a-service (SaaS) applications.

---

Which items do you (1) currently use in the cloud, (2) want to use in the cloud, or (3) did not know you could use in the cloud?

<table>
<thead>
<tr>
<th>Item</th>
<th>Currently use in cloud</th>
<th>Want to use in cloud</th>
<th>Did not know could be used in cloud</th>
</tr>
</thead>
<tbody>
<tr>
<td>Storage</td>
<td>34%</td>
<td>27%</td>
<td>38%</td>
</tr>
<tr>
<td>Applications</td>
<td>28%</td>
<td>28%</td>
<td>44%</td>
</tr>
<tr>
<td>Network</td>
<td>26%</td>
<td>25%</td>
<td>49%</td>
</tr>
<tr>
<td>Database</td>
<td>24%</td>
<td>31%</td>
<td>45%</td>
</tr>
<tr>
<td>Mobile services</td>
<td>21%</td>
<td>23%</td>
<td>57%</td>
</tr>
<tr>
<td>Management tools</td>
<td>17%</td>
<td>29%</td>
<td>54%</td>
</tr>
<tr>
<td>Analytics</td>
<td>14%</td>
<td>30%</td>
<td>56%</td>
</tr>
<tr>
<td>SaaS (software-as-a-service)</td>
<td>12%</td>
<td>20%</td>
<td>68%</td>
</tr>
</tbody>
</table>

Percentage of respondents, n varies = 393-481
Note: Percentages may not add up to 100% due to rounding
The potential to save costs, improve efficiency, and expand data sharing propels agencies to the cloud

As evidence-based policymaking meets leaner budgeting measures, agencies are under pressure to optimize efficiencies while cutting operating costs. Therefore, it makes sense that many see cloud as a financially viable opportunity.

The Government Accountability Office (GAO) said as much last year when it found agencies could reap as much as $8 billion in savings by continuing closure of the government’s 11,000 data centers and moving assets over to the cloud. 45 percent of respondents seem to agree.

In your opinion, what are the primary factors driving your organization’s adoption of cloud technologies? Please select all that apply.

- Cost reductions/savings: 45%
- Improved organizational efficiency: 43%
- Expanded data sharing capabilities: 42%
- Increased adaptability/flexibility: 34%
- Increased mission effectiveness: 34%
- Data center consolidation: 34%
- Enhanced data security: 32%
- Potential for increased innovation: 18%
- Improvements in advanced analytics: 17%
- Growth of Internet of Things/devices: 14%
- Other: 10%
- None of the above: 8%

45% of respondents believe the potential for cost reductions is a leading incentive for their agency’s move to the cloud.

---

Respondents look for speedy and versatile technology to enhance their workflow

69% of respondents ranked ‘speed’ as their first or second choice when asked to prioritize attributes of new technology designed to improve workflow efficiency.

Which attributes should your organization prioritize the most when considering technology that can improve workflow/application efficiency?

1st Speed (1,267 pts)
2nd Versatility (1,135 pts)
3rd Portability (1,010 pts)
4th Scalability (838 pts)

24% of respondents are either dissatisfied or very dissatisfied with the performance of current cloud-based applications at their agency, compared to 18% of those who reported a positive experience.

How satisfied are you with the cloud-based applications currently offered by your organization?

- Very dissatisfied: 15%
- Dissatisfied: 9%
- Neutral: 58%
- Satisfied: 14%
- Very satisfied: 4%

Ranked by Borda count, n=425

Note: Percentages may not add up to 100% due to rounding
Research Findings

Close to half of respondents believe their agency’s progress in reducing data centers lags behind peers.

**Compared to other agencies, how would you evaluate your organization’s progress in reducing its data centers in the last year?**

- 45% Behind peers
- 37% On par with peers
- 19% Ahead of peers

45% of respondents feel their agency has under-delivered in comparison with peers when it came to reducing their data center footprint in the last year.

37% say progress is on par with others.

19% believe they are ahead of peers.

**How familiar are you with your organization’s data center strategy (i.e. its reasons/objectives for closing data centers)?**

- Not at all familiar: 48%
- Not very familiar: 25%
- Somewhat familiar: 21%
- Very familiar: 4%
- Extremely familiar: 2%

73% are either ‘not very’ or ‘not at all’ familiar with their organization’s data center strategy.

With 67% of respondents identifying as GS/GM-13 rank or higher, the finding suggests that strategy remains unclear to a majority of senior decision-makers as well.
The opportunity to shed maintenance costs is a primary driver for data center closures

The government spent roughly $5.4 billion in 2014 on maintaining its vast share of data centers. Understandably, 62% of respondents say the ability to reduce these expenditures and save costs is the top driver for their agency’s continued data center closures.

However, a recent report by GAO finds that agencies struggle to make progress on this front, casting doubt on a central goal of the 2016 Data Center Optimization Initiative (DCOI) — that of reducing federal-wide maintenance costs to $2.7 billion by 2018.

62% say their agency’s decision to close data centers hinges on the value reaped by giving up maintenance costs.

---

Research Findings

**In your opinion, what factors are most responsible for driving your organization’s efforts to close data centers? Please select all that apply.**

<table>
<thead>
<tr>
<th>Factor</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cost savings in relinquishing data center maintenance</td>
<td>62%</td>
</tr>
<tr>
<td>Pressure from federal policy (e.g., DCOI)</td>
<td>44%</td>
</tr>
<tr>
<td>Opportunity to leverage cloud-based technology</td>
<td>21%</td>
</tr>
<tr>
<td>Recent advancements in cloud security</td>
<td>20%</td>
</tr>
<tr>
<td>Promoting Green IT/power savings</td>
<td>8%</td>
</tr>
<tr>
<td>Other</td>
<td>8%</td>
</tr>
<tr>
<td>None of the above</td>
<td>6%</td>
</tr>
</tbody>
</table>

Percentage of respondents, n=216
Respondents were asked to select all that apply.

---


As agencies optimize existing data centers, a range of challenges threaten to derail their efforts. Security, cost, and difficulties in sunsetting legacy IT to make way for new equipment top the list of concerns. And at least a quarter of respondents point to gaps in employee training (30%) and general lack of strategy (26%) as additional hindrances.

58% of respondents cite security as a concern in their agency’s data center optimization.

Anxieties over security and cost are common concerns to agencies pursuing optimization

In your opinion, what are the top concerns or challenges your organization faces as it seeks to consolidate and optimize its data centers? Please select all that apply.

- Security concerns: 58%
- Cost: 44%
- Configuring/sunsetting legacy IT: 34%
- Training/shifting expertise: 30%
- Lack of strategy: 26%
- Relinquishing data center maintenance to third parties: 24%
- Cultural inertia: 21%
- Lack of leadership buy-in: 18%
- Other: 6%
- None of the above: 4%

Percentage of respondents, n=252
Respondents were asked to select all that apply
Research Findings

71 percent of respondents have used unauthorized IT on one or more occasions to aid productivity

42% of respondents describe their organization’s cloud governance as non-existent, and another 17% believe what exists is either too lax or insubstantial to meet mission needs.

“I feel the level of cloud governance my organization provides is ____________.”

- Non-existent: 42%
- Insubstantial / too lax: 17%
- Sufficient: 33%
- Excessive / too restrictive: 8%

71% of respondents recall using an unauthorized application on at least one occasion in order to streamline work or collaborate more easily with others. 35% identify as ‘occasional’ or ‘frequent’ users of such IT.

“To aid productivity and collaboration, my colleagues and I ____________ use applications which fall outside the IT toolkit provided by my organization.”

- Never: 29%
- Rarely: 19%
- Seldom: 12%
- Occasionally: 25%
- Frequently: 15%

Percentage of respondents, n=333  
Note: Percentages may not add up to 100% due to rounding

Percentage of respondents, n=345  
Note: Percentages may not add up to 100% due to rounding
Senior IT leaders are credited with pushing IT modernization forward, but policy also exerts influence.

Among the following entities listed, whom do you consider most responsible for driving IT modernization (i.e., cloud migration, data center consolidation) at your organization?

<table>
<thead>
<tr>
<th>Entity</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Senior IT leadership (e.g., CIO, CDO)</td>
<td>34%</td>
</tr>
<tr>
<td>Federal regulating bodies (e.g., DISA, FITARA, DCOI)</td>
<td>23%</td>
</tr>
<tr>
<td>IT program management (e.g., technical program lead)</td>
<td>17%</td>
</tr>
<tr>
<td>IT technical personnel (e.g., sysadmin, network support)</td>
<td>16%</td>
</tr>
<tr>
<td>Non-technical end-users/employees</td>
<td>9%</td>
</tr>
<tr>
<td>None of the above</td>
<td>4%</td>
</tr>
<tr>
<td>Don't know</td>
<td>35%</td>
</tr>
</tbody>
</table>

Note: Percentages may not add up to 100% due to rounding.

34% of respondents attribute the bulk of IT modernization milestones to their senior IT leadership, such as Chief Information Officers and Chief Data Officers.
Agency leaders largely fail to convey strategic reasons for cloud migration and data center reduction

When asked to evaluate their leadership on strategic communication related to cloud migration and reducing data center footprint, a majority of respondents say no such discussion has even taken place. Conversely, just 14% of respondents say cloud strategy has been communicated to a moderate or great degree; for data center reduction, that figure drops to 11%.

Nearly a third have at least heard some degree of plans communicated, but findings overall show that strategy needs to reach a larger audience. Without sharing and justifying these plans, many might be inclined to continue working outside of governing policies and place their agencies at undue risk.

62% of respondents say their leadership has neglected to communicate strategy related to data center optimization.

To what degree has your leadership communicated its overall strategy for ________________?

<table>
<thead>
<tr>
<th>Moving to a cloud computing environment</th>
<th>Not at all</th>
<th>To some degree</th>
<th>To a moderate degree</th>
<th>To a great degree</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>55%</td>
<td>32%</td>
<td>9%</td>
<td>4%</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Reducing its data center footprint</th>
<th>Not at all</th>
<th>To some degree</th>
<th>To a moderate degree</th>
<th>To a great degree</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>62%</td>
<td>27%</td>
<td>7%</td>
<td>4%</td>
</tr>
</tbody>
</table>

Percentage of respondents, n=389 and 367, respectively
Note: Percentages may not add up to 100% due to rounding
A fourth of respondents are dissatisfied with leaders’ handling of workforce changes due to migration

While a majority are neutral on the topic (62%), a quarter of respondents feel their leaders have underperformed when it came to handling workforce changes due to cloud migration.

Just 12%, meanwhile, feel the opposite, saying leaders have been successful or extremely successful in managing workforce developments borne out of cloud implementation.

1 in 4 respondents describes their leaders’ efforts to manage cloud-influenced workforce developments as poor or extremely poor.

How has your agency’s leadership handled workforce changes stemming from cloud migration?

- Extremely poorly: 14%
- Poorly: 12%
- Neither poorly nor successfully: 62%
- Successfully: 10%
- Extremely successfully: 2%

Note: Percentages may not add up to 100% due to rounding.
42 percent of respondents say cloud adoption has occurred entirely or partially outside of governance.

**To what extent has your agency adopted cloud services and tools according to established Governance Models (i.e. operating framework guiding IT business decisions)?**

- **58%** of respondents reporting knowledge of their agency’s governance policy indicate that the entirety of cloud adoption has been managed under agency governance.
- **29%** indicate that some cloud services and tools have been adopted outside of governance.
- **13%** indicate that the majority of cloud adoption has occurred outside of governance.

Percentage of respondents, n=97

Note: Percentages may not add up to 100% due to rounding.
Research Findings

1 in 3 respondents says DCOI has had no impact on their agency’s decision to adopt cloud

The Data Center Optimization Initiative (DCOI), enacted in 2016, requires federal agencies to “develop and report on their data center strategies; transition to more efficient infrastructure (e.g., cloud services); leverage technology advancements to optimize infrastructure; and provide quality services for the public good.”

What impact has the Data Center Optimization Initiative (DCOI) had on your organization’s decision to migrate to the cloud?

- None: 34%
- Slight impact: 24%
- Moderate impact: 28%
- Major impact: 14%

Note: Percentages may not add up to 100% due to rounding.

42% of respondents believe DCOI has exerted either a moderate or major influence on their agency’s decision to migrate to the cloud.
A quarter of respondents say hybrid cloud is currently in use, while many more are exploring the option. Of respondents with knowledge on the matter, 31% indicate their agency either currently uses a hybrid cloud or is in the process of procuring one. The diagram illustrates the distribution of responses:

- **23%** My organization currently uses a hybrid solution
- **8%** My organization is procuring a hybrid solution
- **33%** My organization is evaluating whether a hybrid solution is right for us
- **6%** My organization has decided against using a hybrid solution
- **31%** None of the above

Respondents were additionally provided with the following language when answering the question: "A hybrid cloud solution uses multiple data infrastructure solutions where at least one solution is public cloud and at least one other is private (e.g., private cloud, on-premise data center, etc.)."
Final Considerations

When considering how to mobilize employees for the cloud journey:

Make cloud progress democratic

Most research shows that the majority of cloud aversion stems not from technical anxiety or lack of expertise, but a failure to involve and educate employees on the impact that cloud can have on an organization. In this environment, IT modernization proceeds only as fast as leadership wills it. The current findings show this mentality in action:

- 59% of respondents say cloud governance is either non-existent or insubstantial
- 71% of respondents have used unauthorized IT applications on at least one occasion
- 26% of respondents believe leadership has failed to handle workforce changes resulting from cloud migration

The message to leadership is clear: by communicating the strategy and organizational impact of cloud transformation, more employees will feel invested and accountable in abiding by such a framework in their daily lives.

Treat cloud as your sandbox

There’s no doubt that switching to the cloud can save agencies millions and increase overall productivity. But what often gets overlooked is cloud’s ability to drive innovation.

- Just 18% of respondents said cloud’s potential for innovation was driving their agency’s migration
- Over half of respondents were not aware of cloud’s capability to host mobile services, management tools, analytics, or as-a-service licenses

Going forward, agencies must be able to communicate and enforce strategic cloud governance in alignment with mission needs. Hybrid cloud is the perfect tool to meet that goal: with 29% of respondents already deploying (or about to deploy) hybrid cloud, and another 1 in 3 who say their agency is exploring the option, we expect this trend to continue through 2018 and beyond. By addressing governance while unleashing new capabilities, hybrid cloud gives agencies an ideal platform for driving innovative solutions to government’s greatest challenges in the 21st century.
**Respondent Profile**

A majority of respondents are senior decision-makers in the federal government

### Employment

- **Federal Civilian**
  - 78%

- **Active Duty Military / DoD Civilian**
  - 22%

Percentage of respondents, n=555

Note: Percentages may not add up to 100% due to rounding

### Grade/Rank

- **SES**
  - 4%

- **GS/GM-15**
  - 14%

- **GS/GM-14**
  - 14%

- **GS/GM-13**
  - 25%

- **GS/GM-12**
  - 19%

- **GS/GM-11**
  - 8%

- **GS/GM-10 or below**
  - 2%

- **O7 to O10**
  - 6%

- **O4 to O6**
  - 4%

- **Other**
  - 4%

Percentage of respondents, n=346

Note: Percentages may not add up to 100% due to rounding

### Reports/Oversees

- **1 to 5**
  - 20%

- **6 to 20**
  - 16%

- **21 to 50**
  - 5%

- **51 to 200**
  - 4%

- **Over 200**
  - 2%

- **None**
  - 53%

Percentage of respondents, n=338

Note: Percentages may not add up to 100% due to rounding

22% of respondents identify as either active duty military or civilians employed by the Department of Defense.

63% of respondents identify as working at the GS/GM-13 level or above, which includes members of the Senior Executive Service as well as officers equivalent in ranking.

47% of respondents are supervisors who oversee at least one employee either directly or through direct reports.
31% of respondents identify as salaried managers or executive managers in their organization.

1 in 5 respondents has direct oversight or control of budgets amounting to $1 million or more. Not shown are 62% who say they have no direct control over any allocated funds.
### Respondent Profile

#### Most widely represented are program managers, technical specialists, and purchasing authorities

<table>
<thead>
<tr>
<th>Job function</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Program/project management</td>
<td>14%</td>
</tr>
<tr>
<td>Law enforcement/public safety</td>
<td>12%</td>
</tr>
<tr>
<td>Technical/scientific</td>
<td>12%</td>
</tr>
<tr>
<td>Acquisition/procurement</td>
<td>10%</td>
</tr>
<tr>
<td>Agency leadership</td>
<td>7%</td>
</tr>
<tr>
<td>Administrative/office services</td>
<td>4%</td>
</tr>
<tr>
<td>Audit/inspectors general</td>
<td>4%</td>
</tr>
<tr>
<td>Information technology</td>
<td>4%</td>
</tr>
<tr>
<td>Human resources</td>
<td>4%</td>
</tr>
<tr>
<td>Healthcare professions</td>
<td>4%</td>
</tr>
<tr>
<td>Finance</td>
<td>4%</td>
</tr>
<tr>
<td>Facilities, fleet, real estate</td>
<td>3%</td>
</tr>
<tr>
<td>management</td>
<td></td>
</tr>
<tr>
<td>Legal</td>
<td>3%</td>
</tr>
<tr>
<td>Communications/PR</td>
<td>3%</td>
</tr>
<tr>
<td>Policy research/analysis</td>
<td>2%</td>
</tr>
<tr>
<td>Other</td>
<td>10%</td>
</tr>
</tbody>
</table>

Respondents were asked to choose which single response best describes their primary job function.

<table>
<thead>
<tr>
<th>Departments and agencies represented</th>
</tr>
</thead>
<tbody>
<tr>
<td>Agriculture</td>
</tr>
<tr>
<td>Homeland Security</td>
</tr>
<tr>
<td>Navy</td>
</tr>
<tr>
<td>Interior</td>
</tr>
<tr>
<td>Air Force</td>
</tr>
<tr>
<td>Army</td>
</tr>
<tr>
<td>Treasury</td>
</tr>
<tr>
<td>Health &amp; Human Services</td>
</tr>
<tr>
<td>General Services</td>
</tr>
<tr>
<td>Administration</td>
</tr>
<tr>
<td>Commerce</td>
</tr>
<tr>
<td>Housing &amp; Urban Development</td>
</tr>
<tr>
<td>Transportation</td>
</tr>
<tr>
<td>Environmental Protection Agency</td>
</tr>
<tr>
<td>Justice</td>
</tr>
<tr>
<td>Justice</td>
</tr>
<tr>
<td>Labor</td>
</tr>
<tr>
<td>Office of the Secretary of Defense</td>
</tr>
<tr>
<td>National Aeronautics &amp; Space</td>
</tr>
<tr>
<td>Administration</td>
</tr>
</tbody>
</table>

Departments and agencies are listed in order of frequency.
About

Government Business Council

As Government Executive Media Group’s research division, Government Business Council (GBC) is dedicated to advancing the business of government through analysis, insight, and analytical independence. An extension of Government Executive’s 40 years of exemplary editorial standards and commitment to the highest ethical values, GBC studies influential decision makers from across government to produce intelligence-based research and analysis.

Report Author: Daniel Thomas

Deloitte

Deloitte provides industry-leading audit, consulting, tax, and advisory services to many of the world’s most admired brands, including 80 percent of the Fortune 500. Our people work across more than 20 industry sectors with one purpose: to deliver measurable, lasting results. We help reinforce public trust in our capital markets, inspire clients to make their most challenging business decisions with confidence, and help lead the way toward a stronger economy and a healthy society. Learn more at www.deloitte.com/us/federal-cloud

About Deloitte

As used in this document, "Deloitte" means Deloitte Consulting LLP, a subsidiary of Deloitte LLP. Please see www.deloitte.com/us/about for a detailed description of our legal structure. Certain services may not be available to attest clients under the rules and regulations of public accounting.