IBM Mainframe’s Strategic Viability Debunked

By Ivan Gelb
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- **Syllabus:** Just when we might think that we heard all the IBM mainframe architecture related attacks on its long term, strategic viability, the USA Government fuels these attacks anew. The Government Accountability Office (GAO) issued a report in 2018: “Information Technology: IRS Needs to Take Additional Actions to Address Significant Risks to Tax Processing.” The report questions the viability of the IBM mainframe as the system of record for governmental systems. This session will debunk the anti-mainframe opinions in general, and specifically the GAO report and its assumptions about the mainframe’s tactical and strategic viability. Subject Matter Experts’ (SME) objective insights will be presented about: (1) the mainframes strategic viability, and (2) how any IBM mainframe site’s problems can be remedied without costly and highly risky transitioning away from their proven reliable IBM mainframe platform. All IT professionals are encouraged to submit questions, comments, and contributions for this session by emailing the author at any time – please send emails to ivan@gelbis.com. The top nine contributors, three from each category, will receive a cute trivial gift as a reward. All contributions selected by the author will be recognized in the final version of these slides, and published in Conference’s proceedings and various other industry “sign posts.”
SHARE: GAO’s Mainframe Risk Claims Debunked

The Government Accountability Office’s (GAO) 2018 report, "Information Technology: IRS Needs to Take Additional Actions to Address Significant Risks to Tax Processing," calls into question the viability of the mainframe as the system of record for governmental systems. It also cites a shortage of human resources with critical skills. (View the brief of the GAO report here.) This article highlights a few issues with the report and its assumptions about the mainframe’s viability, and offers some insights into how the government agency’s problems are tied to poor management and could be remedied without transitioning away from their proven reliable and the lowest Total Cost of Ownership (TCO) mainframe architecture when compared to any other platform.
Agenda

- Background
- In the News
- GOA Report Dissection
- Relevant Facts
- Facts vs. Facts
- Facts vs. Fiction
- Best Tactics
- Best Strategies
Background

In the beginning (circa mid 1960s) . . . .

- 1970s
- 1980s
- 1990s
- Y2K
- 2010s
In the News . . .

- OK Google…(BTW – what is different from past?)
- Why keep our IBM mainframe computer?
- Why replace our IBM mainframe computer?
- Which computer system architecture is best for our new business computer systems development?
In the News . . .

• OK Google… Why keep our IBM mainframe computer? The 1\textsuperscript{st} page . . .
In the News . . .

- OK Google… Why keep our IBM mainframe computer? The 2nd page . . .

Mainframe computer - Wikipedia
https://en.wikipedia.org/wiki/Mainframe_computer
Mainframe computers or mainframes are computers used primarily by large organizations for...
Modern mainframes, notably the IBM zSeries. System z9 and System z10 servers, offer two levels of...
... NEC with ACOS and Hitachi with AP10000-VQS3 still maintain mainframe hardware businesses in the Japanese market.

Who uses mainframes and why do they do it? - IBM
https://www.ibm.com/support/.../zosbasics/.../ibm...zmainframe/zconc_whousesmf.htm
Because of these design strengths, the mainframe is often used by IT organizations to host the most important, mission-critical applications. These applications typically include customer order processing, financial transactions, production and inventory control, payroll, as well as many other types of work.

Images for Why keep our IBM mainframe computer?

⇒ More images for Why keep our IBM mainframe computer?

What is a mainframe? It's a style of computing - IBM
https://www.ibm.com/support/.../com.ibm...zmainframe/zconc_whatismainframe.htm
Although the term mainframe first described the physical characteristics of early systems, today it can best be used to describe a style of operation, applications, ...
In the News . . .

- OK Google. . .Why replace our IBM mainframe computer?

Did you mean: Why replace *your* IBM mainframe computer?

IBM Mainframe Computer | The engine of transformation | IBM.com

About 1,150,000 results (0.60 seconds)

Mainframes
Get the Gold Standard for
Security and Reliability.

Large Enterprise Servers
View Our Servers for a Strong
and Secure IT Infrastructure.

Back to the Future: Why the Cloud Won't Replace the Mainframe ...

Over the years, the mainframe has adapted with each new wave of technology to maintain its place at the center of many computing environments. . . . The first modern mainframe, the IBM 360, was launched in April 1964. It could perform 229,000 calculations per second; an innovation that helped put man on the moon.
In the News . . .

- OK Google…Which computer system architecture is best for our new business computer systems development?

There are many different kinds of computer architectures. One way of categorizing computer architectures is by number of instructions executed per
When the Government Accountability Office (GAO) issued a report on federal government’s information technology (IT) systems last year, it caused a lot of noise, much of it warranted. Committee room props insinuated that the Department of Defense (DoD) needs to investigate the value of 8-inch floppy disks for critical systems. No one would disagree with that example.

At the House Oversight and Government Reform hearing on this issue last May, DoD chief information officer Terry Halvorsen thoughtfully responded that the department uses what works within its available budget. Still, some government technology leaders exploit these highly-publicized examples by advocating for a “rip, rewrite, and replace” strategy regarding federal IT. This idea is fueled by the misconception that the path of “cloud first” is the Holy Grail for modernization.
In the News . . . On 03/31/2017...

Legacy thinking

As new budgets and priorities are being proposed, we should understand that the real problem isn’t about legacy technology, but a pattern of legacy thinking, where hot, new technologies seduce us into believing that certain tried systems are no longer trustworthy or flexible enough to meet tomorrow’s needs and that some Holy Grail exists to fix all federal IT challenges.

While true for certain technologies, it’s not true for all. It’s time to discern and be specific about what needs to be modernized. What we’ve seen in the private sector offers a clue. Otherwise, we could very well be wasting time, effort and taxpayer dollars chasing the next big thing, when modernizing the original is the most effective and efficient option.

Chris O’Malley is chief executive officer of Compuware, an American software company with products aimed at the information technology departments of large businesses.
GOA Report Dissection

GAO-18-298
Jun 28, 2018 - Information technology plays a pivotal role as the IRS processes the nation’s taxes. In this podcast, GAO takes a look at how the IRS is handling ...

Information Technology - Homeland Security Digital Library
https://www.hsdl.org/?abstract&id=812569
Jun 28, 2018 - Information Technology: IRS Needs to Take Additional Actions to Address Significant Risks to Tax Processing, Report to Congressional ...

Information Technology: IRS Needs to Take Additional Actions to ...
https://www.aferm.org/.../information-technology-irs-needs-to-take-additional-actions... ▼

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https://event.share.org/blog/share-gao-s-mainframe-risk-claims-debunked ▼
May 9, 2019 - ... (GAO) 2018 report, “Information Technology: IRS Needs to Take Additional Actions to Address Significant Risks to Tax Processing,” calls into ...
GOA Report Dissection

What GAO Found

The performance of the Internal Revenue Service's (IRS) selected information technology (IT) investments that GAO reviewed varied. Specifically, the four selected investments in the development phase that GAO reviewed spent less than planned, but most were behind schedule and delivered less scope than planned (see table below). In addition, the five selected investments in the operations and maintenance phase that GAO reviewed had performed internal qualitative assessments of performance as required by the Office of Management and Budget (OMB); however, none of the analyses addressed all key factors specified in OMB guidance.

Reported Performance of Selected Internal Revenue Service (IRS) Investments in Development during Fiscal Year 2016 and the First Two Quarters of Fiscal Year 2017

<table>
<thead>
<tr>
<th>Investment name</th>
<th>Total budgeted cost of work performed (in millions)</th>
<th>Total actual cost of work performed (in millions)</th>
<th>Cost variance</th>
<th>Schedule variance</th>
<th>Percentage of planned scope delivered</th>
</tr>
</thead>
<tbody>
<tr>
<td>Enterprise Case Management</td>
<td>$31.8</td>
<td>$30.3</td>
<td>Under budget 4.7%</td>
<td>Late -8.7%</td>
<td>91.3%</td>
</tr>
<tr>
<td>Customer Account Data Engine 2</td>
<td>$35.0a</td>
<td>$31.0</td>
<td>Under budget 11.5%</td>
<td>Late -54.0%</td>
<td>46.0%</td>
</tr>
<tr>
<td>Return Review Program</td>
<td>$78.8</td>
<td>$49.3</td>
<td>Under budget 37.5%</td>
<td>Late -18.8%</td>
<td>81.2%</td>
</tr>
<tr>
<td>Affordable Care Act Administration</td>
<td>$199.0</td>
<td>$157.4</td>
<td>Under budget 20.9%</td>
<td>On time</td>
<td>n.d.</td>
</tr>
</tbody>
</table>

Source: GAO analysis of IRS data. | GAO-18-298
GOA Report Dissection

Recommendations for Executive Action

1. **Recommendation**: The Commissioner of the IRS should ensure the operational analysis for IMF fully addresses greater utilization of technology or consolidation of investments to better meet organizational goals. (Recommendation 1)
   
   **Agency Affected**: Department of the Treasury: Internal Revenue Service
   
   **Status**: Open
   
   **Comments**: In September 2018, IRS told GAO it would ensure the operational analysis for the Individual Master File (IMF) fully addresses greater utilization of technology or consolidation of investments to better meet organizational goals and demonstrate this in the final operational analysis report by July 2019.

2. **Recommendation**: The Commissioner of the IRS should ensure the operational analysis for IDRS addresses the extent to which the investments support customer processes as designed, and how well the investments are delivering the goods or services they were designed to deliver. (Recommendation 2)
   
   **Agency Affected**: Department of the Treasury: Internal Revenue Service
   
   **Status**: Open
   
   **Comments**: In September 2018, IRS told GAO it had developed new performance metrics including functionality (i.e., goods and services) in response to the recommendation and planned to update the fiscal year 2019 business case for the Integrated Data Retrieval System (IDRS) by May 2019. IRS also stated it would ensure the final operational analysis report for IDRS addresses the extent to which the investment is delivering the intended goods and services by July 2019.

3. **Recommendation**: The Commissioner of the IRS should ensure the operational analysis for Telecommunications Systems and Support (TSS) addresses the extent to which the investments support customer processes as designed, and how well the investments are delivering the goods or services they were designed to deliver. (Recommendation 3)
   
   **Agency Affected**: Department of the Treasury: Internal Revenue Service
   
   **Status**: Open
   
   **Comments**: In September 2018, IRS told GAO it would ensure the operational analysis for TSS addresses the extent to which the investment supports customer processes as designed, and how well the investment is delivering the intended goods and services by July 2019.
# GOA Report Dissection

<table>
<thead>
<tr>
<th>Acronym</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>MSSS</td>
<td>Manpower Staffing Standards System</td>
</tr>
</tbody>
</table>
GOA Report Dissection

16. **Recommendation**: The Commissioner of the IRS should fully implement the risk management key practice associated with preparing for risk management for the MSSS investment. (Recommendation 16)

   **Agency Affected**: Department of the Treasury: Internal Revenue Service

   **Status**: Open

   **Comments**: In September 2018, IRS told GAO it would implement the recommendation by October 2019.

17. **Recommendation**: The Commissioner of the IRS should fully implement the risk management key practice associated with identifying risk for the MSSS investment. (Recommendation 17)

   **Agency Affected**: Department of the Treasury: Internal Revenue Service

   **Status**: Open

   **Comments**: In September 2018, IRS told GAO it would implement the recommendation by October 2019.

18. **Recommendation**: The Commissioner of the IRS should fully implement the risk management key practice associated with analyzing risk for the MSSS investment. (Recommendation 18)

   **Agency Affected**: Department of the Treasury: Internal Revenue Service

   **Status**: Open

   **Comments**: In September 2018, IRS told GAO it would implement the recommendation by October 2019.

19. **Recommendation**: The Commissioner of the IRS should fully implement the risk management key practice associated with mitigating risk for the MSSS investment. (Recommendation 19)

   **Agency Affected**: Department of the Treasury: Internal Revenue Service

   **Status**: Open

   **Comments**: In September 2018, IRS told GAO it would implement the recommendation by October 2019.
GOA Report Dissection

20. Recommendation: The Commissioner of the IRS should fully implement the risk management key practice associated with monitoring, reporting, and controlling risk for the MSSS investment. (Recommendation 20)

Agency Affected: Department of the Treasury: Internal Revenue Service

Status: Open

Comments: In September 2018, IRS told GAO it would implement the recommendation by October 2019.

21. Recommendation: The Commissioner of the IRS should fully implement IT workforce planning practices, including the following actions (1) setting the strategic direction for workforce planning; (2) analyzing the workforce to identify skill gaps; (3) developing strategies and implementing activities to address skill gaps; and (4) monitoring and reporting on progress in addressing skill gaps. (Recommendation 21)

Agency Affected: Department of the Treasury: Internal Revenue Service

Status: Open

Comments: In September 2018, IRS told GAO it had initiated efforts to address workforce planning agency-wide. The agency stated that the Human Capital Office in coordination with the Information Technology organization prioritizes critical skills gaps to develop gap mitigation strategies, implemented through the IT annual training plans and succession planning efforts. IRS also stated that the mitigation plans will be monitored in the current Project and Portfolio Management System and that the Human Capital and Information Technology organizations will monitor resource capacity, skills, assigned work effort, and staff availability. In addition, IRS stated that it would utilize special hiring authorities as a competency and staffing mitigation strategy. The agency noted that the special authorities are subject to the availability of resources and agency approval. Further, IRS stated that, due to the diversion of IT resources to the Tax Cuts and Jobs implementation, development of a plan for scaling and expansion of workforce planning efforts will commence after the opening of Filing Season 2020. IRS stated that, due to those constraints, it could not provide a date for fully implementing the recommendation.
Relevant Facts

- All Costs
- Features
- Security
- Reliability
- Serviceability
- Availability
Facts vs. Facts

- All Costs
- Features
- Security
- Reliability
- Serviceability
- Availability
Facts vs. Fiction

- All Costs
- Features
- Security
- Reliability
- Serviceability
- Availability
Best Tactics

- i.e. ITSM . . .
Best Strategies

- i.e. ITSM . . .
Time for...