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THESIS

THE DEPARTMENT OF HOMELAND SECURITY'S PURSUIT OF DATA-DRIVEN DECISION MAKING

by

Robert C. King III

December 2015

Thesis Advisor: Christopher Bellavita
Second Reader: John Rollins

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Lack of management integration is hindering the Department of Homeland Security's ability to conduct oversight and perform accurate assessments of its mission support functions. The DHS Under Secretary of Management and the Department's Management Directorate have been tasked with creating a "unity of effort" aimed at integrating the department's management functions via technology strategies that capture data and use it to make informed decisions. This thesis explores these strategies as the Department makes strides towards removing itself from the GAO's classification of DHS as "high-risk"—a categorization due in part to DHS's inability to integrate the disparate management information systems in existence during its creation in 2001.

The author conducted interviews with past and present senior executives in an effort to comprehensively explore the various strategies used to accomplish the goal of implementing true data-driven decision-making. The result is identification of impediments and facilitators associated with the ability to drive enterprise-wide change. These findings are then applied against a change management analytical framework, Leavitt's Diamond. Recognizing that change cannot happen in a vacuum, the findings are analyzed across the dimensions of Leavitt's Diamond to determine which strategies are most consistently aligned.

Ultimately, the results of this thesis are considerations for how the Management Directorate can position and mature its technology strategies in accordance with other organizational dynamics.

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THE DEPARTMENT OF HOMELAND SECURITY'S PURSUIT OF DATA-DRIVEN DECISION MAKING

Robert C. King III
Systems Modernization and Integration, Program Manager
Office of the Chief Readiness Support Officer, Management Directorate
U.S. Department of Homeland Security

Submitted in partial fulfillment of the
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Approved by: Dr. Christopher Bellavita
Thesis Advisor

John Rollins
Second Reader

Erik Dahl,
Associate Chair of Instruction,
Department of National Security Affairs

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ABSTRACT

Lack of management integration is hindering the Department of Homeland Security's ability to conduct oversight and perform accurate assessments of its mission support functions. The DHS Under Secretary of Management and the Department's Management Directorate have been tasked with creating a "unity of effort" aimed at integrating the department's management functions via technology strategies that capture data and use it to make informed decisions. This thesis explores these strategies as the Department makes strides towards removing itself from the GAO's classification of DHS as "high-risk"—a categorization due in part to DHS's inability to integrate the disparate management information systems in existence during its creation in 2001.

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LIST OF ACRONYMS AND ABBREVIATIONS

ACS	Accounting Classification Structure
BI	Business Intelligence
CBP	U.S. Customs and Border Protection (DHS Component)
CAO	Chief Administration Officer
CAS	Chart of Accounts
CFO	Chief Financial Officer
CIO	Chief Information Officer
CPO	Chief Procurement Officer
CBP	Customs and Border Protection (DHS Component)
COTS	Customizable Off-the-Shelf (software)
CRSO	Chief Readiness Support Officer
CSO	Chief Security Officer
DCAO	Deputy Chief Administration Officer
DCFO	Deputy Chief Financial Officer
DCIO	Deputy Chief Intelligence Officer
DCPO	Deputy Chief Procurement Officer
DCRSO	Deputy Chief Readiness Support Officer
DHS	Department of Homeland Security
DUSM	Deputy Undersecretary of Management
DW	Data Warehousing
EMERGE^2	Electronically Managing Enterprise Resources for Government Efficiency and Effectiveness (program)
ESC	Executive Steering Committee
EXEC SEC	Office of the Executive Secretary (within DHS Headquarters)
FEMA	Federal Emergency Management Agency (DHS Component)
FSM	Financial Systems Modernization
FSSP	Federal Shared Service Provider
GAO	Government Accountability Office

GSA	General Services Administration
HQ	DHS Headquarters
ICE	Immigration and Customs Enforcement (DHS Component)
LOB	Line of Business (refers to Management Directive Line of Business)
MGMT	Management Directorate
OMB	Office of Management and Budget
TASC	Transformation and Systems Consolidation (program)
TSA	Transportation Security Agency (DHS Component)
USCG	United States Coast Guard (DHS Component)
USCIS	United States Citizen Immigration Services (DHS Component)
USM	Under Secretary of Management
USSS	United States Secret Service (DHS Component)

EXECUTIVE SUMMARY

In God we trust, all others must bring data.

– KT Waxman[1]

Certain industries have excelled at collecting data, transforming it into information, and then positioning it back into our lives to influence our decision-making processes. For example, the retail corporation Target "knew" a teenaged girl was pregnant based on her search queries and began sending her baby-related coupons, prior to her family being made aware of her situation.[2] Google Flu Trends, which in 2008 began to predict flu outbreaks based on Google users' search queries, was able to demonstrate accuracy comparable to the Center for Disease Control, yet was able to release their predictions one to two weeks in advance of the CDC.[3] The list of examples of how technology and data influences our daily lives can go on and on. However, while there are numerous examples of industries using technology to influence our decision-making processes, there are others that are struggling in their ability to collect data and position it for similar purposes. Unfortunately, some of these entities play a critical role in maintaining and managing our nation's safety and security resources.

Information silos contributed to the inability of U.S. federal agencies in detecting and thwarting the September 11, 2011, attacks. The Department of Homeland Security was created in the aftermath of these attacks as a means to integrate numerous federal agencies responsible for executing missions associated with securing the homeland. However, more than a dozen years after the creation of DHS, many of these agencies' information management systems pertaining to mission support and business operations

[1] KT Waxman, "Financial and Business Management for the Doctor of Nursing Practice," Nov. 5, 2012. Springer Publishing Company, 186.

[2] Kashmir Hill, "How Target Figure Out A Teen Girl Was Pregnant Before Her Father Did," Feb. 16, 2012. Forbes.com, http://www.forbes.com/sites/kashmirhill/2012/02/16/how-target-figured-out-a-teen-girl-was-pregnant-before-her-father-did/.

[3] Christian Stefansen, "Google Flu Trends gets a brand new engine," Google Research Blog, Oct. 31, 2014, http://googleresearch.blogspot.com/2014/10/google-flu-trends-gets-brand-new-engine.html

remain non-interoperable and un-integrated. In other words, the same tools and information we now take for granted to manage our personal lives are not readily available to the leaders that manage a multi-billion dollar federal conglomerate that is integral to our national security.

The inability to capture and access management data for decision-making has been a known problem area for DHS since its inception. As such, there have been numerous attempts using multiple strategies aimed at integrating the department's Components and implementing technologies to capture and provide enterprise data to the business leaders of DHS. However, these initiatives have all encountered obstacles – not from the technologies themselves, but instead from other factors inherent to the homeland security project, including those related to political, interpersonal, legal, and procurement.

In an attempt to partially overcome these silos, DHS Secretary Jeh Johnson issued a memo to the leaders across the Department on April 22, 2014, titled "Strengthening Departmental Unity of Effort." This initiative defines the goals of maturing a teenaged Department to be "greater than the sum of its parts" and instructs DHS leaders to take specific steps to improve planning, programming, budgeting and execution across the Department.[4] This memo also directed DHS leadership to make several key changes to "transparently incorporate DHS Components into unified decision-making processes and the analytic efforts that inform decision-making."[5] The Under Secretary of Management, the third highest-ranking official within the Department, is tasked with executing the "Unity of Effort" initiative. While many in Congress and government see the "importance of developing and implementing a systematic approach that emphasizes strong management and integrated processes" within DHS, this is not the first attempt at pursuing such objectives.[6] The previous Secretary, Janet Napolitano, had a similar

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[4] Jeh C. Johnson, *Department of Homeland Security, Strengthening Departmental Unity of Effort* Washington, DC: April 22, 2014, 1, http://www.hlswatch.com/wp-content/uploads/2014/04/DHSUnityOfEffort.pdf.

[5] Ibid.

[6] Stephanie Sanok Kostro, "The Department of Homeland Security Unity of Effort Initiative," Homeland Security and Counterterrorism Program: Center for Strategic & International Studies. April 2015. http://csis.org/files/publication/150407_Kostro_DHSUnityofEffort.pdf.

initiative titled "One DHS."

To fully understand the challenges associated with implementing "Unity of Effort" and the Management Directorate's ability to position data to drive decision-making, the origins and missions of the Management Directorate must be first addressed and digested. The initial role of the Management Directorate was to "establish a center for comprehensive management leadership. The lack of such a focal point is a serious omission in most executive departments, resulting in the dispersion of responsibility for promoting effective management among numerous second and third-tier officials."[7] Thus, to gain an understanding of the origins of the Management Directorate and its ability to drive enterprise-wide change, interviews with past and present senior-level DHS officials were conducted. These interviews revealed that while the Management Directorate has been given significant responsibilities, it suffers from a lack of a defined identity and faces numerous internal and external obstacles towards influencing Department-wide change. Many of these obstacles are a result of having to continuously balance operational and oversight responsibilities as well as from initially lacking a well-defined relationship with the DHS operating Components. Additionally, the influences of the law enforcement and legacy agency cultures contribute to a territorial environment, which adds to these obstacles. Another contributor involves the fact that the event-driven, reactive environment of DHS creates an atmosphere that is dominated by the "tyranny of the present."[8]

Change cannot happen in vacuum. For change to be successful, it must be aligned across a variety of interrelated dimensions, to include policy, authority, process, technology and people. The implementation of information technology (IT) systems impacts organizations significantly. However, as is often the case with the selection and implementation of IT systems, the magnitude of change associated with these systems and the necessity of this alignment and are not typically understood or effectively

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[7] Thomas H. Stanton, *Meeting the Challenge of 9/11: Blueprints for More Effective Government* (New York, NY: Routledge, 2006), ix.

[8] "Tyranny of the present" was a phrase used by many of the research participants to describe the Management Directorate's operating environment.

managed. Meanwhile, adding to the intrinsic organizational change management challenges is the idea that,

> The subject of strategic information management is diverse and complex. It is not simply concerned with technological issues—far from it…it incorporates aspects of strategic management, globalization, the management of change and human/cultural issues, which may not at first sight have been considered as being directly relevant in the world of information technology.[9]

Using the data from the interviews, the research is applied to Leavitt's Diamond, which is an analytic change management framework. The result of this thesis is an analysis of how the various technology strategies pursued by DHS align across the other change dimensions identified Leavitt's Diamond. Using this analysis, recommendations are presented for how DHS can achieve its goals of management integration, data-driven decision making and systems modernization, all of which are foundational to "Unity of Effort."

[9] Robert D. Galliers, Dorothy E. Leidner, Bernadette S.H. Baker, *Strategic Information Management: Challenges and Strategies in Managing Information Systems* (Woburn, MA: Butterworth Heinemann, 2nd Edition, 1999), xiii.

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I. THESIS OVERVIEW, METHODOLOGY AND SYNOPSIS

A. INTRODUCTION

The creation of the Department of Homeland Security in 2003 and its absorption of several large legacy government agencies presented one of the "biggest 'change management' challenges of all time, dwarfing even the creation of the Department of Defense after World War II. Never before has a consolidation of this size occurred with such national importance and urgency and in such a short amount of time."[1] Adding to the inherent organizational change management challenges stemming from the creation of DHS, "the subject of strategic information management is diverse and complex. It is not simply concerned with technological issues—far from it…it incorporates aspects of strategic management, globalization, the management of change and human/cultural issues, which may not at first sight have been considered as being directly relevant in the world of information technology"[2] Irrespective of known challenges, former Deputy Secretary of DHS Admiral James Loy in 2006 recognized that, "We at Homeland Security now better appreciate how we must integrate our organizational, personnel, financial, evaluation, and information technology systems with the rest of the government."[3] However, a dozen years after its creation, this management integration has yet to occur in either the rest of the government or internally within DHS. Additionally, it is reasonable to expect DHS to be able to integrate these systems internally—and have the ability to represent itself as a single entity—prior to successfully integrating them with the rest of government.

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[1] Thomas H. Stanton, *Meeting the Challenge of 9/11: Blueprints for More Effective Government* (New York, NY: Routledge, 2006), xi.

[2] Robert D. Galliers, Dorothy E. Leidner, Bernadette S.H. Baker, *Strategic Information Management: Challenges and Strategies in Managing Information Systems* (Woburn, MA: Butterworth Heinemann, 2nd Edition, 1999), xiii.

[3] Stanton, *Meeting the Challenge of 9/11,* xi.

B. PROBLEM STATEMENT

Since the Department of Homeland Security's inception, it has lacked a single, integrated, enterprise-wide management information system. The result is that the Department of Homeland Security's (DHS or the Department) business data is not housed in a standardized, centralized manner. Consequently, when leaders require information, they must conduct time-intensive, resource-dependent data calls with each DHS Component. The DHS business leaders are the six chief executive officers whose lines of business report directly to the Under Secretary of Management.

The impact of not having readily available business data was formally acknowledged by the DHS Under Secretary of Management (USM) in February 2014 when he stated, "As you know we have 13 different financial systems, it took sometimes 90 days plus just to do a data call within the various components to get information back to help decision making, whether it was to respond to Congress, respond to the Office of Management and Budget or respond to the secretary."[4]

Similarly, when "Superstorm Sandy" hit the Northeastern United States in 2012, substantial DHS government assets—ranging from office and warehouse space, motor vehicles, computer servers, and other forms of property—were destroyed or severely damaged in the tri-state area.[5] The total value of the repair and replacement costs for DHS assets exceeded $91 million.[6] Many DHS programs operating in this region were severely handicapped because of debilitated property.[7] Due to not having property inventory data readily available, DHS Headquarters was forced to conduct a time-intensive data call with its Components to gather data on the damaged assets in an effort to understand the impact to the Department's capabilities. The dependency on data calls has a compounding negative effect, because it pulls personnel away from serving the core

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4 Jason Miller, "Borras Leaves DHS More Integrated, on Better Financial Path," *Federal News Radio*, February 19, 2014, http://component.federalnewsradio.com/?nid=474&sid=3565846&pid=0&page=1.

5 U.S. Department of Homeland Security, Internal Departmental Report, *Superstorm Sandy: Real and Personal Property Damage Assessment* (Washington, DC: U.S. Department of Homeland Security, 2012).

6 Ibid.

7 U.S. Department of Housing and Urban Development, Hurricane Sandy Rebuilding Task Force, *Hurricane Sandy Rebuilding Strategy*, Washington, DC: 2013, http://portal.hud.gov/hudportal/documents/huddoc?id=hsrebuildingstrategy.pdf.

homeland security missions at a critical time. The absence of a recognized, authoritative information source from which leaders could assess the impacted property prohibited DHS from mobilizing response assets, conducting liability analysis, and engaging Congress to request emergency repair/replacement funds in a timely manner.

The lack of a single, enterprise-wide information management system has resulted in numerous, disparate systems operating within the Management Directorate's lines of businesses and across the DHS Components. The lack of a single enterprise-wide system is an example of an impediment severely impacting the Department's ability to collect and manage data.

C. OBJECTIVE OF STUDY

The goal of this research is to enable an understanding of the organizational, cultural, and technology dynamics impacting the Department of Homeland Security's Management Directorate pertaining to strategies for the collection of business and management data from which a data-driven decision-making culture can be established.

D. RESEARCH QUESTIONS

The goal of centralizing management information and data-driven decision-making is a high priority for DHS. In March 2012, the Department's Under Secretary of Management, who is the third highest ranking official in the Department, testified before the U.S. House of Representatives and stated that one of his highest priorities was to "improve the way we [DHS] collect, store, and manage data across the Department in order to improve executive-level decision making."[8] The entirety of this testimony focused on core themes related to maturing data management, supporting enterprise-level decision making, and integrating disparate processes and systems."[9]

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[8] *Building One DHS: Why Can't Management Information Be Integrated: Before the Committee of Homeland Security, Subcommittee on Oversight, Investigations, and Management, House of Representatives,* 112th Cong. (2012). (testimony of Honorable Rafael Borras, DHS Under Secretary of Management).

[9] Ibid.

Primary Question:

What are the likely impediments associated with the goal of collecting and managing enterprise-wide management data and from where do these impediments originate?

Secondary Question:

How do these impediments relate to the primary technology strategies the USM is currently using in an attempt to meet this goal?

E. BENEFITS

The benefits of this research will potentially allow organizations struggling to identify and establish successful data collection strategies to develop a culture of data-driven decision-making and learn from the Management Directorate's experiences. This research demonstrates that technology strategies cannot be developed in a vacuum and must be juxtaposed with other environmental dynamics, such as organizational structure and influence and the existing oversight and governance models.

F. BACKGROUND ON DHS MANAGEMENT DIRECTORATE

The DHS Management Directorate is headed by the Under Secretary of Management and is responsible for bolstering national security through effective use of the Department's workforce, assets, and resources.[10] It ensures that the Department's more than 230,000 employees have well-defined responsibilities, and that "managers and their employees have efficient means of communicating with one another, with other governmental and nongovernmental bodies, and with the public they serve."[11]

According to its website, the Directorate for Management is responsible for:

- Budget, appropriations, expenditure of funds, accounting and finance;
- Procurement; human resources and personnel;

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10 "Directorate for Management," U.S. Department of Homeland Security, accessed September 26, 2015, http://www.dhs.gov/directorate-management.

11 Ibid.

- Information technology systems;
- Facilities, property, equipment, and other material resources; and
- Identification and tracking of performance measurements relating to the responsibilities of the Department.[12]

The Under Secretary of Management is a presidentially appointed and Senate confirmed civilian position and is the third ranking member of the Department. The Management Directorate is organized into six offices that assist the USM in carrying out of management responsibilities and duties. The officials, each with a corresponding office with the Management Directorate, include:

- Chief Financial Officer
- Chief Human Capital Officer
- Chief Information Officer
- Chief Procurement Officer
- Chief Readiness Support Officer
- Chief Security Officer[13]

While most of these executive positions are career appointments, the CFO and CIO are considered political appointees. Political appointees "refers broadly to any employee who is appointed by the President, the Vice President, or agency head" and differs from "Career Appointment" officials who are generally long-term civil servants within the federal government.[14]

G. SCOPE AND ASSUMPTIONS

This research is primarily framed from the interviews with senior-ranking officials who either previously served or are currently serving in the Management Directorate. With one exception, each of the officials' last tour of duty was in the

[12] Ibid.

[13] Ibid.

[14] "Political Employees," U.S. Office of Government Ethics, accessed September 26, 2015, http://www.oge.gov/Topics/Selected-Employee-Categories/Political-Appointees/.

Management Directive prior to leaving DHS. The one exception is an official who was initially the DCFO for DHS, but is currently a senior-level executive within Customs and Borders Protection (a DHS Component) where he serves as CFO and CAO. Therefore, the data captured in the research is predominantly represented from the DHS Management Directive's perspective, while the perspectives of the DHS Components were not equally represented. Further research would be needed to collect the perspectives of executives in similar positions from across the DHS Operational Components.[15]

There was a significant amount of data captured from these interviews for this thesis. This thesis will primarily focus on a handful of the most common patterns and themes that were identified in the data—it will not explore all the findings and themes identified. Additionally, not all of the core themes and patterns necessarily relate to the Management Directorate's pursuit of information systems or data; however, they provide insights to the DHS culture and the environment influencing the ability to coordinate and govern enterprise-wide initiatives.

In terms of the Management Directorate and its lines of business, this thesis focuses primarily on the business functions of financial management, procurement, and asset management. This is due to several factors, including the composition of the research participants and the long-standing investments towards modernizing the systems associated with these business functions. The other business functions associated with the Management Directorate, namely security and human capital management, had modernization and consolidation strategies that were only notionally addressed within this research. There are opportunities to explore how the strategies for these business functions align to the research and findings presented in this thesis.

The selection of interviewees resulted in a top-down approach, as the interviews were conducted with executive-level officials who are/were responsible for establishing strategy and priorities. This approach was intentional as the research was focused on the

[15] The DHS Operational Components include: The U.S. Coast Guard, U.S. Customs and Border Protection, U.S. Secret Service, Transportation Security Administration, Immigration and Customs Enforcement, U.S. Citizenship and Immigration Services, and the Federal Emergency Management Agency.

development of strategy in relationship to other organizational factors. If the interviews had been with mid-level managers and tacticians, the data would have been presented differently as the focus would likely have been on implementation challenges associated with the targeted strategies.

H. METHODOLOGY INTRODUCTION

The purpose of this section is to provide an overview of the investigative techniques and research performed in support of this thesis. The methodology for collecting data and the reasoning behind the interviews are examined. Face-to-face interviews were utilized in conjunction with a literature review to gain insight into the history of the Management Directorate's approach towards capturing management data and developing a data-driven decision-making culture.

Interviews were conducted to gather firsthand information regarding strategies aimed at collecting data and developing a data-driven culture. The interviews were designed to gain an understanding of the organizational characteristics, priorities, and dynamics of the DHS Management Directorate. Additional information about the selection of interviewees, the interview questions, and the characteristics of the data obtained are outlined in this chapter.

Prior to the interviews being conducted, the author coordinated and submitted a "Human Subject Determination Request" package through the Institutional Review Board (IRB). The package included the interview questions contained in the enclosed Appendix, the list of targeted interview candidates, and the thesis proposal. The author also completed all required IRB training associated with conducting human subject research. The IRB determination was that this research did not meet the definition of human subject research and that the interviews could be conducted without additional IRB oversight.

I. SELECTION OF OFFICIALS TO INTERVIEW

Interviews were conducted with past and present high-ranking officials of the Management Directorate. These individuals held executive positions, such as Under

Secretary of Management, Chief Financial Officer, and Deputy Chief Information Officer within the Management Directorate. These chiefs/deputy chiefs came from the Financial, Information, and Administration/Readiness Support offices. The objective was to interview executives spanning the timeframe from the inception of the Department (i.e. January 2003) through present day and to have representation from each Executive Secretaries' administration.

The purpose of targeting and interviewing officials from each administration was to gain an understanding of the environmental, organizational, and leadership factors that influenced the focus of the Management Directorate at that given time. The purpose of selecting executive personnel was to understand how these factors influenced the ability to establish and implement strategy – and more specifically, strategy tailored towards integrating management information and establishing an environment where information could be a foundation for decision-making. Therefore, all interviewees were from the Senior Executive Service ranks and played instrumental roles in influencing the Management Directorate's policy and strategy.

The intention was to interview multiple Under Secretaries of Management, as they are responsible for leading the Management Directorate and setting its priorities. All USMs except the current one were interviewed. The first was Janet Hale, who was the first USM of DHS and served under the first two DHS secretaries (Secretary Tom Ridge and Secretary Michael Chertoff) from November 2002 through May 2006. The second was Elaine Duke, who served at TSA prior to joining DHS as the Chief Procurement Officer and was subsequently appointed as USM. She served DHS in this role from June 2007 through April 2010. The third was Rafael Borras, who served as USM from April 2010 through December 2013 and served the last four months in the role of Acting Deputy Secretary of DHS. He served under Secretary Janet Napolitano and briefly under Secretary Jeh Johnson. Ms. Hale and Ms. Duke were republican appointees under President George W. Bush's Administration. Mr. Borras was a democratic appointee under President Barack Obama's Administration.

It was also important to interview the "Chiefs" (Chief Executive Officers), of which there are six serving the USM at any one time. These individuals are responsible

for setting policy, strategy, and priorities within the core lines of business (LOBs) for the Management Directorate. It was especially important to interview a blend of executives from the various offices to observe if and how their functional focus impacted the responses. Executives from the Chief Financial Office and the Chief Information Office were specifically targeted due to their historical roles in influencing strategies pertaining to systems modernization and information consolidation. Executives from other Management Directorate lines of business were also interviewed. Of the six chief executive officers serving the USM, four of the six are career officials, while two are senate-confirmed political appointees. The two political appointed chiefs are the CFO and the CIO.

The officials interviewed were a combination of career and political appointees and are currently at various stages of their careers. Some are still executives within the DHS Management Directorate. One individual was previously an executive within the Management Directorate, but is currently an executive within a DHS Component. Many have left the federal government and are currently in the private sector, as is oftentimes the case with political appointees when the Executive Administration changes. The impact of political appointees and their affiliation and tenure as aligned to the political cycle will be further discussed in later chapters.

The full list of officials interviewed for this thesis includes:

- Rafael Borras: Former USM and Acting Deputy Secretary from April 2010 through December 2013.
    - Interview conducted in person on August 27, 2015, in Arlington, Virginia.
- Elaine Duke: Former USM from June 2007 though April 2010 and prior Chief Procurement Officer for the Management Directorate.
    - Interview conducted in two parts: First part was conducted in person in Washington, D.C., on September 21, 2015. Second part was conducted September 22, 2015, via phone call.

- Chip Fulghum: Current DHS CFO and Acting DUSM.
    - Interview conducted in person in Washington, D.C., on October 29, 2015.
- Margie Graves: Current DCIO serving since September 2008. Ms. Graves has also served as the acting CIO in her 11 years with DHS.
    - Interview conducted in person on September 10, 2015, in Washington, D.C.,
- Janet Hale: First Senate-confirmed USM for DHS serving from February 2003 through May 2006.
    - Interview conducted in person on September 2, 2015, in Washington, D.C.
- David Norquist: First Senate-confirmed CFO serving from June 2006 through December 2008.
    - Interview conducted in person on September 10, 2015, in Alexandria, Virginia.
- Stacy Marcott: Current DCFO since May 2012. Ms. Marcott has served DHS in a variety of roles, including Chief of Staff to the USM, since 2004. Also serves as co-chairman of the USM's chartered Business Intelligence Dashboard Executive Steering Committee.
    - Interview conducted in person on August 25, 2015, in Washington, D.C.
- Scott Myers: Former DCAO and DCRSO serving from July 2007 through December 2014.
    - Interview conducted in person on August 26, 2015, in Washington, D.C.
- Richard Spires: Former CIO serving from Sept. 2009 through May 2013.
    - Interview conducted in person on September 11, 2015, in Washington, D.C.
- Peggy Sherry: Former DCFO and CFO serving from July 2008 through November 2013. Also served as Director of Financial Management starting in

2007 within the Office of the Chief Financial Officer.

  - Interview conducted in person on August 31, 2015, in Alexandria, Virginia.

- Eugene Schied: Former DCFO serving from November 2004 through December 2006. Current Assistance Commissioner of Administration for Customs and Border Protection, which entails the former responsibilities of the CFO and CAO.
  - Interview conducted in person on September 4, 2015, in Washington, D.C.
- Keith Trippie: Former Executive Director of Enterprise Services for the DHS Chief Information Officer serving from April 2003 through March 2014. Also served as co-chairman of the USM's chartered Business Intelligence Dashboard Executive Steering Committee.
  - Interview conducted in person on August 21, 2015, in Arlington, Virginia.

J. INTERVIEW QUESTIONS AND FORMAT

Each of the individuals voluntarily met to conduct their interview in person. The interviews typically lasted between 90 and 120 minutes. Only one interview was broken into two parts with the first half being conducted in person and the second half being conducted over the phone. Some officials were comfortable having their interviews recorded, while a few were not.

The interviews were conducted using a semi-structured approach wherein questions that were designed to elicit discussion and reflection from the interviewees were provided in advance of and then again at the start of the interview. The interview questions, which can be found in the Appendix, were established from the strategies and approaches identified in the literature review. During the interviews each research participant, understandably, focused on questions that resonated with the strategies and programs that were relevant during their tenure. The direction and topical areas selected by the participants generated discussion to clarify and better understand the topics raised

by the interviewee. This was expected because the participants were employed by the DHS Management Directorate at different times, during which certain strategies and initiatives were more pertinent than others. None of the interviews followed the questions in order and oftentimes the interviewee jumped around to questions to which they had a particular interest.

Despite the research participants driving the dialogue towards relevant topics from their tenure, there was an effort to ensure specific questions and topics were addressed. These questions/topics pertained to the role of culture within the Management Directive with specific focus on the relationships between the Management Directorate and the Components, the role and availability of systems to produce management data, and the organizational factors influencing that ability to use data to inform decision-making within DHS.

Each interview was documented with notes and, when allowed, digitally recorded. Notes were then transferred to electronic files in most cases. The research quotes and concepts presented in this thesis that comprise chapters III through VI were sent to each research participant for verification and validation.

K. LITERATURE REVIEW APPROACH

In preparation for the interviews and to understand the history and culture of the Department in the targeted research topics, a literature review was conducted. The literature review spanned multiple topics, focus areas, and sources. The literature review was broken into a handful of key sections, including: DHS-specific internal literature, GAO and OMB literature, and third-party academic and government journals.

The DHS-specific literature reviews focused on exploring Congressional testimony, internal memorandums, charters, and briefings. Testimony and briefings by many of the same officials that were ultimately interviewed were incorporated into this literature review.

The Government Accountability Office's and Office of Management and Budget's websites were also queried with similar terms. Specific policies, such as Memo-

13-08 “Improving Financial Systems through Shared Services” were searched within the OMB website. Within the GAO website, audit and reports associated to DHS and “Management Integration” were queried.

To conduct the general third-party literature review, the principle topics that were researched online, primarily through the Dudley Knox Library, Google Scholar, and Government Information Quarterly sites, included individual or combined searches on the following topics:

- “Socio-technical Factors”
- “Leavitt’s Diamond”
- “Systems modernization”
- “Data Consolidation” or “Data Warehousing”
- “Business Intelligence”
- “Management Integration”
- “Organizational Change”

Some queries were paired with the term “Department of Homeland Security” while others were not.

L. ORGANIZING THE DATA

The results of the interviews and literature reviews produced an extensive amount of data. Some of the interviews themselves explored topics that were not anticipated. While there are clearly identifiable common themes and patterns described within, the extent to which the interview responses varied is surprising. In fact, the results of the interviews demonstrate disparate—and at times conflicting—perceptions by officials on the various strategies, priorities, and roles and responsibilities of the Management Directorate. The disparity in certain responses in-and-of-itself is revealing. As the data was collected from executives representing the breadth of the Department since its 2003 creation and throughout different administrations, differences regarding the target strategies, priorities, and challenges are to be expected to a certain extent. Additionally, fundamental differences surrounding strategy surfaced during the interviewing process

and those will be also discussed. The data was ultimately organized into four core themes that were most prevalent and pertinent across all the interviews. Each of these core themes is presented as individual chapters.

Further, the core themes identified herein do not represent the full breadth of data collected during these interviews. Many insightful and significant observations were made that simply did not pertain to the topics associated with this thesis research.

The research presented in Chapters III through VI pertains directly to the interviews. All content appearing in the bodies of these chapters directly correlate to statements or concepts made during the course of the interviews, unless specifically cited otherwise. Thus, the initial quote made by a research participant will be cited accordingly. Since all research participants were interviewed one time, with the exception of one which spanned two sessions, it is assumed that all subsequent quotes made by an individual stems from the same interview. As such, the subsequent quotes by a research participants made in these four chapters will not be cited.

It is also worth noting that many of the interview participants, when discussing their role within the Management Directorate, used a variety of terms to reference the Management Directorate. The terms were used interchangeably and examples included "the Department," "Headquarters" and "Management." For consistency within this paper, the term Management Directorate will be used.

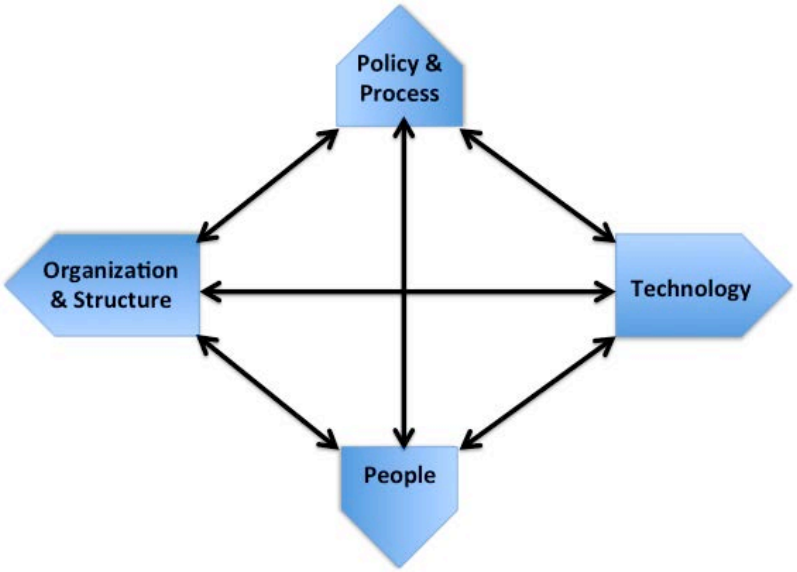
M. APPLYING THE DATA THROUGH AN ANALYTICAL FRAMEWORK

As this research focused on instituting change across a complex and dynamic federal department, Leavitt's Diamond, represented in Figure 1, was selected at the initial onset. Leavitt's Diamond is recognized as a readily known and referenced change management framework. It is comprised of four dimensions and asserts that for change to be successful, it must occur in a balanced manner across all four of its dimensions, "Organization and Structure," "Policy and Processes," "Technology," and "People."[16] Of

[16] In the original Leavitt's Diamond, the "Process and Policy" dimension was referred to as "Tasks," but its description allows it to be positioned and applied in this manner. There are numerous studies that have adopted this dimension in the same approach.

its four dimensions—each represented as a corner of the diamond—three aligned with direct or ancillary research topics addressed in this research. The only dimension that did not apply to this research is the "People" dimension. This was because this dimension correlates primarily to the rewards and incentives systems that influence behavioral change among the workforce, which was not within the scope of this research project. Background on Leavitt's Diamond can be found in Chapter II, as it was part of the literature review.

Figure 1. Leavitt's Diamond Adaptation



There are numerous adaptations of Leavitt's Diamond found in literature. This adaptation stems from the model found in *Strategic Knowledge Management in Multinational Organizations* by Kevin O'Sullivan (Hershey, PA: IGI Global, 2007), 64.

Once the data was collected and analyzed, it was presented against this framework. More specifically, it looks at the relationship between the various strategies used by the DHS Management Directorate to capture management data for decision-making purposes and determines their level of alignment across the "Organization & Structure," "Technology" and "Policy and Process" dimensions. This analysis is

presented in the final "Findings and Recommendations" chapter. Once the analysis was completed, it was used to frame the recommendations found in the final chapter.

N. CHAPTER SYNOPSIS

This section provides a summary of each chapter within the thesis. There are six chapters in addition to this one. Chapter II pertains to the previously described literature review. The next four chapters, Chapters III through VI, relate directly to the research associated with the interviews. Chapters III through VI each correlate to a core theme that emerged from the interviews. Chapter VII is the final chapter and pertains to the findings and recommendations. This final chapter is where the data from chapters III through VI is applied through the Leavitt's Diamond framework, which is used to structure the final recommendations.

Chapter II: Literature Review

Given the emphasis on first-person interviews for this research, the literature review was conducted to achieve three objectives. The first objective was to inform the researcher on the academic literature associated with information management and systems as they pertain to organizational change in public sector organizations. The second objective was to understand and identify the federal oversight and audit literature associated with the thesis topics as applied to DHS specifically, as well as the federal government in general. The third objective was to have the literature review frame and formulate the interview questions that would be asked of the research participants.

Chapter III: Management Directorate's Lack of an Identity

This chapter provides a historical look at influencing factors surrounding the establishment of DHS and the Management Directorate. This chapter begins with a focus on understanding the environmental and cultural dynamics influencing the Department as described by those officials who led the Management Directorate at its onset. Having this context from these individuals was important because many of their early decisions established precedents that are still in place in current day. The chapter then explores

impediments that have impacted the Management Directorate's ability to define and execute its core missions.

Chapter IV: Management Directorate's Role in Policy, Oversight, and Governance

With respect to its authority, there was wide recognition that the Management Directorate's strategic value proposition to the Department is establishing business policy and instruction, performing oversight, and conducting assessment. These activities are described as the "hard-wiring and plumbing of the Department." Despite this acknowledgement, there have been cultural and organizational barriers that have prevented these activities from being effectively resourced, executed, and adopted. This chapter explores the Management Directorate's approaches toward maturing these activities and discusses how cultural and organizational barriers influence their approaches.

Chapter V: Challenges with Implementing Enterprise-wide IT Solutions

This chapter outlines the strategies the Management Directorate has formulated to achieve its goals pertaining to the collection and positioning of data. It also provides a chronology of the information systems initiatives that the Management Directorate has pursued, with specific attention on its efforts to modernize and transform its financial management systems. Financial management includes other related subsidiary functions, such as procurement and asset management. The second part of the chapter explores the Management Directorate's approach towards enterprise data consolidation, which was the strategy that was adopted once the pursuit of a single, centralized management system ceased. As each of these various initiatives are discussed, their alignment to the Management Directorate's authorities and other organizational and cultural dynamics are given consideration.

Chapter VI: Maturing and Positioning Business Information within DHS

This chapter builds on the subsequent chapter to discuss factors for consolidating and integrating the Management Directorate's individual LOB data. Specifically, it explores how a data warehousing and business intelligence tool, referred to as the Management Cube, is being developed and positioned to integrate data from each of the individual lines' of business data marts. As these systems have matured, there is a need to understand the governance necessary to position and utilize their information for decision-making purposes, especially given the organizational and cultural dynamics described in the earlier chapters. Therefore, this chapter also explores the tactics the Management Directorate should consider for positioning information within the organizational dialogue and decision-making processes.

Chapter VII: Findings and Recommendations

This final chapter takes the research data from the subsequent chapters and applies it to the Leavitt's Diamond analytical framework. The objective is to determine how the various strategies used to consolidate and position data interrelate across the framework's dimensions of "Organization and Structure," "Policy and Process," and "Technology." As this research was structured around identifying impediments impacting the various strategies, this chapter applies the data collected in Chapters III through VI and determines which strategies offset these impediments. These recommendations would presume to be the most viable option for the Management Directorate to achieve its goals.

Once the analysis via Leavitt's Diamond is conducted to present the findings, this chapter is used to present recommendations that the Management Directorate should consider. These recommendations are both directly and indirectly associated to the objective of the research question. In other words, because the data from this thesis, specifically the interviews with the Management Directorate officials, explored topics tangential to the immediate research, the findings and related recommendations also diverge across interrelated organizational and policy considerations.

II. LITERATURE REVIEW

A. INTRODUCTION

This literature review focused on the intersection of two distinct topics. The first topic was the relationship of strategic information management, as associated with information systems, to organizational change. This relationship was specifically framed against public sector agencies, since most of the immediate literature on this topic appears to be predominantly in reference to the private sector. It is important to understand the different variables for instituting information systems and organizational change within the government, as opposed to the private sector, since there are different mission drivers. The second topic was the Department of Homeland Security's business, management and audit drivers. A synopsis of the Department's information systems approaches, as associated with these business and audit drivers, is also provided.

Additionally, this literature review includes a section on Leavitt's Diamond, which is a change management analytic framework. This section provides an introduction and overview of the framework.

B. STRATEGIC INFORMATION MANAGEMENT AND ORGANIZATIONAL CHANGE

The advancement of information technology continues to be transformative on all sectors and industries. Dianne Lux Wigand, Ph.D., in a 2007 article titled "The Impact Of Information Technology On Structure, People, And Tasks," notes, "Numerous information technologies (such as group support systems, custom Intranets, workflow systems, ERP systems) play a central role in today's organizations. Their combined use may be seen as analogous to the body's central nervous system. Collectively they enable numerous desirable tasks such as retrieving, linking, tracking, data entering and providing feedback (e.g., user/customer responses)."[17] Given the impact of the deployment of

[17] Dianne L. Wigand, Ph.D., "Building on Leavitt's Diamond Model of Organizations: The Organizational Interaction Diamond Model and the Impact of Information Technology on Structure, People, and Tasks" (article, America's Conference on Information Systems, University of Arkansas, Little Rock, AR 2007, December 31, 2007).

information technology generally—and information systems, more specifically—there is a significant amount of literature on its application as a change agent. However, much of this literature is tailored to the private sector where the business drivers, such as time-to-market, eliminating redundancies, and competition, are readily apparent and voluminous. The literature associated to public sector information technology—specifically as it pertains to information systems—is not as comprehensive. Much of this is due to the unique complexities associated with the public sector, which is even further compounded when applied to the federal government. The drivers between the private sector (profits, stakeholder value) and the public sectors (mission, open competition) greatly influence how information technology is managed and implemented across these two sectors.

It is clear that information technology/information systems (IT/IS) is a change agent and that change, irrespective of sector, must be managed to recognize the value of the IT/IS investment. Peter G.W. Keen supports this stance in *Information Systems and Organizational Change* when he notes, "Formalized information systems are thus often seen as threatening and not useful. They are an intrusion into the world of the users who are rarely involved in their development and see these unfamiliar and nonrelevant techniques as a criticism of themselves. Leavitt's classification of organizations as a diamond, in which Task, Technology, People and Structure are mutually inter related and mutually adjusting, indicates the complex nature of social systems. When Technology is changed, the other components often adjust to dampen out the impact of the innovation. Many writers on implementation stress the homeostatic behavior of organizations, and the need to 'unfreeze the status quo.'"[18] Keen identifies "Data as a central political resource. Many agents and units in organizations get their influence and autonomy from their control over information" and later notes the "link between control over information and influence… Information is a resource that symbolizes status, enhances authority and shapes relationships. Information is an element of power."[19] Keen recognizes the importance of information as a political and power-based entity and notes that it is a

[18] Peter G.W.Keen, "Information Systems and Organizational Change," *Massachusetts Institute of Technology: Center for Information Systems Research,* CISR No. 55 (May 1980): 6.

[19] Ibid., 7.

"main cause of inertia," which needs to be overcome through the "careful building of coalitions, based on complex negotiations."[20] One significant finding of Keen's that resonates strongly within the DHS landscape is, "evaluation [as defined] as central to the exercise of authority. In general, providing management (or outside agencies) with data that permit closer observation of subordinates' decision making or that help define additional output measures increases control and decreases autonomy. Many public sector agencies protect data on their operations as a means of maintaining their independence."[21] Keen exemplifies this point by highlighting studies of information systems in local government, which provide many illustrations of this point. One example given is how police agencies shield their data from ancillary stakeholders, such as mayors and budget agencies, as a means of maintaining information control.

Part of this thesis will focus on understanding the role of change management as a critical ingredient within the Department's technology strategies. It will also explore how the organizational dynamics should influence the selection of IS strategies. To this point, Rob Lambert in Chapter 15 of *Strategic Information Management*, which is titled **"**The Information Technology—Organizational Design Relationship: Information Technology and New Organizational Forms," recognizes that **"**Business transformation planning demands two key activities: planning the organization strategy and developing an information systems strategy which facilitates this strategy, but which is also closely aligned to business requirements. The conventional IS/IT planning framework does not explicitly consider the organization's ability to delivery business strategy. A key concern of business transformation planning is a critical evaluation and understanding of the existing organization's characteristics and capabilities of how the current IS/IT strategy is being used to support them. The gap between existing and required can then be determined. It is important to emphasize that the relationship between the organization strategy and the IS strategy is bi-directional."[22]

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[20] Ibid., 13.

[21] Ibid., 15.

[22] Rob Lambert and Joe Peppard, "The Information Technology-Organizational Design Relationship: Information Technology and New Organizational Forms," *Strategic Information Management* (2013): 454–486.

Meanwhile, Robert Galliers observes, "Delivering the Information Systems (IS) Strategy is traditionally seen as a purely technological issue. However, of key concern are the changes which accompany any IT implementation."[23] Scott Morton identifies "People issues are key reasons why many IT investments fail to realize benefits."[24] Further along the lines of managing change and the personnel impacts associated to any change initiative, "Central to the successful management change is the HR initiatives which are put in place. Many organizations try to accomplish strategic change by merely changing the system and structure of their organization. This is a recipe for failure. HR initiatives will be incorporated within the organization's overall HR strategy and will include education, management development, programs, training and reward structures. Probably one of the greatest barriers to the management of change is the assumption that it simply happens or that people must simply change because it is necessary to do so."[25]

As it pertains to the relationship between an entity's IT and organization structures, "Many of the research studies that have set out to determine the relationship between IT and organizational structure have suffered from one particularly worrying defect. They have sought to make statements about the implications of IT on the organization as a whole, yet studied information systems that impact part of the organization. It is difficult and probably inaccurate in many cases to make observations at a local level and then generalize findings to an aggregate or organizational level. Thus, we seek to align the impact of the information system under evaluation with the appropriate level of organization impact. If one wants to make statements about the organization as a whole, then one must study computer information systems that impact the entire organization"[26]

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[23] Robert D. Galliers, "Strategic Information Systems Planning: Myths, Reality and Guidelines for Successful Implementation," *European Journal of Information Systems* 1, no. 1 (1991): 55–64.

[24] Scott Morton, *The Corporation of the 1990s: Information Technology and Organizational Transformation* (New York: Oxford University Press, 1991).

[25] Lambert and Peppard, *Strategic Information Management*, 454–486.

[26] Jeff Sampler, "Exploring the Relationship Between Information Technology and Organization Structure" in *Information Management: The Organizational Dimension*, ed. Michael J. Earl (New York: Oxford University Press, 1996). 12.

In his piece "*Exploring the Relationship Between Information Technology and Organization Structure"* Jeff Sampler asserts "organizations can be viewed as being composed of departments or sets of groups, which [are referred] to as sub-units…this perspective on organizational structure suggests that the appropriate unit of analysis is the organizational sub-unit. Thus, rather than attempting to characterize the organization as a whole, the more important issue may be what are the optimal organizational arrangements for the various organizational sub-units...and what are the appropriate mechanisms used to coordinate these interdependent sub-units. Similarly, the appropriate question may be to ask what is the impact of IT on an organization's sub-units and how can IT be used to facilitate coordination among these various sub-units."[27]

Sampler summarizes, "analysis of the relationship between IT and organizational sub-units should result in a more accurate matching of the scope of impact of IT with the affected areas of the organization. In addition, analysis at the organizational sub-unit level may allow for more accurate comparisons across similar sub-units within organizations, which will facilitate a cumulative and hopefully more generalizable set of recommendations. Conducting research at the organizational sub-level also may be more relevant as more organizations continue to focus on alternative forms of organizational arrangements, such as networked or virtual organizations."[28] He concludes, "Thus, the impact of IT on the organization may be due to the nature of the task under analysis rather than some intrinsic property of the organization or IT."[29]

C. ANALYTICAL CHANGE FRAMEWORK: LEAVITT'S DIAMOND

In 1964 Harold J. Leavitt produced a model for analyzing the management of change. This is generally referred to as *Leavitt's Diamond* and is "based on the idea that it is rare for any change to occur in isolation."[30] There are four dimensions, also known as elements, in the diamond that are interdependent: technology, task, people, and

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[27] Sampler, *Information Management*, 12–13.

[28] Ibid., 13.

[29] Ibid., 13.

[30] Patricia Cichocki and Christine Irwin, *Organization Design: A Guide to Building Effective Organizations* (London: Kogan Page Limited 2nd Edition, 2011), 29–30.

structure. “Leavitt argued that any change at any point of the of the diamond would impact some or all of the other elements and that any failure to manage their interdependencies at critical times of change could create problems. For example, a change in tasks in a core production process affects the people involved, the structure in which they work, and the technology that they use; and needs to be adjusted throughout.”[31] In other words, “changes made to any one of these four elements cannot and will not occur in isolation. Rather, a change made in any one area of your organization will impact the entire system.”[32]

As it applies to information technology, Leavitt’s Diamond “gives a balanced view of the complexities that affect the Knowledge Management framework by positioning technology in strong relationships to the tasks carried out, people participating in these, and to the organization of the tasks and people, for example, the structure.”[33] According to Leavitt, the four sets of organizational variables—task, people, technology, and structure—are indicated by arrowheads to demonstrate their interdependence and that change in any one usually results in compensory or retaliator change in others. “Technologies are considered tools that help the organization to get work done and mechanisms for transforming inputs to outputs.”[34]

The management implications of Leavitt’s Diamond are far-reaching. Leavitt explains, “Any of these changes could presumably be consciously intended, or they could occur as unforeseen and often costly outcomes of efforts to change only one or two of the variables.”[35] “If the interdependences are not managed at critical times of change, then problems will occur. Experience shows that this is more often the case than not;

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[31] Ibid., 30.

[32] Meghan Vincent, “Who Is Harold Leavitt … And Why Should You Care?” Richard Levin & Associates, http://blog.richardlevinassociates.com/who-is-professor-harold-leavitt-and-why-should-you-care/.

[33] Kevin O’Sullivan, *Strategic Knowledge Management in Multinational Organizations* (Hershey, PA: IGI Global, 2007), 64.

[34] Ibid., 66.

[35] Harold J. Leavitt, “Applied Organizational Change in Industry: Structural, Technological and Humanistic Approaches,” in *Handbook of Organizations*, ed. J. G. March (Skokie, IL: Rand McNally, 1965), 1144–1170.

management tends to look at change factors in isolation and reacts to interrelating variables after the event."[36]

Suprateek Sarker argues:

> [The] approach to managing the implementation of information technologies is often dependent on how we frame the implementation problem…traces the dominant ways of framing the implementation problem that are evident in the literature, and through this historical analysis, identifies the Leavitt's Diamond for representing organizations as the integrative conceptual model underlying much of the current implementation literature.[37]

Sarker also noted:

> Given the recognition of the importance of conceptual devices and frameworks in informing management practice, and more specifically, of an organizational model in informing implementation management it is surprising that scholars have not attempted to improve or extend the diamond model by incorporating concepts (such as subjective realities) that can help analyze political or institutional issues.[38]

D. DHS AUDIT AND BUSINESS DRIVERS FOR INTEGRATING MANAGEMENT INFORMATION

The challenges of integrating the Department—also known as developing a "One DHS" as it has been branded—and integrating management information stems back to the Department's inception. The challenges were recognized at a March 2012 House of Representatives hearing before the Committee of Homeland Security, Subcommittee on Oversight, Investigations, and Management pertaining to "Building One DHS: Why Can't Management Information Be Integrated?" where testimony was heard from the DHS USM, GAO Director of Homeland Security and Justice, and the DHS Inspector General (Acting). The ranking member of this committee, Rep. William R. Keating, observed early in this hearing that,

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[36] Catherine Smith and Bob Norton, "Leavitt's Diamond and the Flatter Library: A Case Study in Organizational Change," *Library Management* Vol. 13, Issue 5 (1992): 18–22.

[37] Suprateek Sarker, "Toward A Methodology For Managing Information Systems Implementation: A Social Constructivist Perspective," *Informing Science* 3, no. 4 (2000): 195–206.

[38] Ibid., 197.

> The Department of Homeland Security is one agency formed with 22 other legacy agencies. Legacy is worth mentioning because it is part of the problem we still are grasping trying to deal with today as we look for integration. There is no secret that since the Department's inception in 2003, that its unique history has caused DHS officials, particularly the management division, to face multiple challenges in building One DHS.[39]

Others have observed the challenges stemming directly from how DHS was created:

> Building the organizational structure and relationships to accomplish that [defending the homeland] mission. That meant integrating the numerous support functions of a new department. It meant working swiftly to get servers up, systems consolidated, and a stapler on every desk—all without moving forces from the protection of the country.[40]

Along the lines of management information systems, the chairman of this committee, Rep. Michael T. McCaul, also recognized, "Stove-piped management information systems continue to plague DHS with mismanagement, redundancies, duplication, and inefficient use of resources that has increased costs within the Department and bungled the implementation of security operations." GAO defines management integration as the "development of consistent and consolidated processes, systems, and people—in areas such as information technology, financial management, acquisition, and human capital—that lead directly to greater efficiency and effectiveness of management and programs."[41] Rep. McCaul also observed the importance of integrated management systems:

> It is essential that integration not be limited just within each individual management function, but also be integrated horizontally across all core management functions of the Department. Without full integration, inconsistent reporting requirements and varying definitions for cost

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39 *Building One DHS: Why Can't Management Information Be Integrated: Before the Committee of Homeland Security, Subcommittee on Oversight, Investigations, and Management, House of Representatives,* 112th Cong. (2012) (statement of Rep. William R. Keating).

40 Stanton, *Meeting the Challenge of 9/11,* Forward X.

41 *Building One DHS: Why Can't Management Information Be Integrated: Before the Committee of Homeland Security, Subcommittee on Oversight, Investigations, and Management, House of Representatives,* 112th Cong. (2012) (statement of Rep. Michael T. McCaul).

estimations across the Department can create inaccurate reports on a program's true cost.[42]

The Government Accountability Office's presence at this hearing was a reflection that GAO categorized the Department's transformation efforts as high-risk in 2003 because, "implementing and transforming the DHS is high risk because DHS had to transform 22 agencies—several with [their own] major management challenges—into one department. Further, failure to effectively address DHS's management and mission risks could have serious consequences for U.S. national and economic security. Given the significant effort required to build and integrate a department as large and complex as DHS, our initial high-risk designation addressed the department's initial transformation and subsequent implementation efforts to include associated management and programmatic challenges. At that time, we reported that the creation of DHS was an enormous undertaking that would take time to achieve, and that the successful transformation of large organizations, even those undertaking less strenuous reorganizations, could take years to implement."[43] Almost annually since this categorization, GAO has published a report updating the Department's status on the strength and integration of the DHS management functions.

Many of these findings and recommendations stem from a 2005 GAO report (GAO-05-139), "A Comprehensive and Sustained Approach Needed to Achieve Management Integration." Additionally, GAO incorporated the requirements associated to developing "a comprehensive strategy for management integration" as specified in the *Implementing Recommendations of the 9/11 Commission Act of 2007* into the score of their ongoing audit and updates of the Department's efforts in this areas.[44] The Department is demonstrating progress as recognized in the last such report, GAO-15-388T, published and released on February 26, 2015 and titled, *Department of Homeland Security: Progress Made, but More Work Remains in Strengthening Management*

[42] Ibid.

[43] *Report to Congressional Committees: High Risk Series – An Update* (GAO-15-290) (Washington, DC: U.S. Government Accountability Office, 2015), http://www.gao.gov/products/GAO-15-290.

[44] *Department of Homeland Security: Progress Made, but More Work Remains in Strengthening Management Functions* (GAO-15-388T) (Washington, DC: U.S. Government Accountability Office, 2015), http://www.gao.gov/products/GAO-15-388T.

Functions. This report demonstrates how the Management Directorate has matured in this area since the GAO's 2009 report, *DHS: A Comprehensive Strategy is Still Needed to Achieve Management Integration Departmentwide*.

At the March 2012 hearing, David C. Maurer from GAO stated that DHS "currently lacks vital management capabilities to integrate the Department into something greater than the sum of its parts…DHS twice attempted and was unable to build an integrated Department-wide financial management system. DHS also lacks comprehensive Department-level visibility over key human capital information."[45] Another statement that Mr. Maurer makes at this hearing summarizes and underlines the purpose of this thesis:

> DHS also faces challenges in modernizing its financial systems. We previously reported that DHS twice attempted to implement an integrated Department-wide financial management system, but had not been able to consolidate its disparate systems. Specifically, in June 2007, we reported that DHS ended its Electronic Managing Enterprise Resources for Government Effectiveness and Efficiency effort after determining that the resulting financial management systems would not provide the expected system functionality and performance. In December 2009, we reported that the Transformation and Systems Consolidation program had been significantly delayed by bid protests and related litigation. In March 2011, DHS ended this program and reported that moving forward it would consider alternatives to meet revised requirements. In 2011, DHS decided to change its strategy for financial system modernization. Rather than implement a Department-wide integrated financial management system solution, DHS opted for a decentralized approach to financial management systems modernization at the component level.[46]

This statement recognizes that the Management Directorate had previously attempted to acquire and implement multiple enterprise resource planning (ERP) systems focused on financial management, procurement, and asset management functions. After multiple attempts to acquire a financial ERP system and spending upwards of $80

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[45] *Building One DHS: Why Can't Management Information Be Integrated: Before the Committee of Homeland Security, Subcommittee on Oversight, Investigations, and Management, House of Representatives*, 112th Cong. (2012) (testimony of David C. Maurer for GAO).

[46] Ibid.

million, the Department ceased its pursuit of a single, enterprise-wide system in 2011.[47] However, the GAO findings and integration objectives that an ERP system would address remain. One of the impacts of not having a management information system is reflected the following statement issued in February 2014 by the DHS USM: "As you know we have 13 different financial systems, it took sometimes 90 days plus just to do a data call within the various components to get information back to help decision making, whether it was to respond to Congress, respond to the Office of Management and Budget or respond to the secretary."[48]

Despite more than a decade of challenges related to integrating management information and implementing a management system, there is reason for optimism as the DHS Secretary Jeh Johnson testified on April 15, 2015, before a Senate Judiciary hearing, "Our Unity of Effort initiative has now been in effect for a year, and it has brought a more centralized process for making decisions concerning budget requests, acquisition, strategy, and other Department functions. Growing out of this initiative, we also have realigned major DHS headquarters activities to consolidate like functions and promote efficiency." The Secretary went on to note that DHS is, "on a path to get off the Government Accountability Office's so-called 'High Risk List.'"[49]

E. OVERVIEW OF DHS MANAGEMENT SYSTEMS APPROACHES

From 2003 through 2011, DHS pursued a financial/mixed-functions (interrelated functions of procurement, asset management, and budget) ERP system. In the early 2000s, "the significant development in global information technologies and the ever-intensifying competitive market climate have pushed many companies to transform their businesses. ERP is seen as one of the most recently emerging process-oriented tools that

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[47] Wilson P. Dizard, III, "DHS scuttles Emerge2 program," *Government Computer News*, September 14, 2006, http://gcn.com/Articles/2006/09/14/DHS-scuttles-Emerge2-program.aspx?Page=1.

[48] Miller, "Borras Leaves DHS," *Federal News Radio*, February 19, 2014, http://component.federalnewsradio.com/?nid=474&sid=3565846&pid=0&page=1.

[49] *Oversight of the Department of Homeland Security. Hearing Before the Committee on the Judiciary, Senate*, 114th Cong. (2015) (testimony of DHS Secretary Jeh Johnson). http://www.dhs.gov/news/2015/04/28/written-testimony-dhs-secretary-jeh-johnson-senate-committee-judiciary-hearing.

can enable such a transformation."[50] For DHS, the ERP system was the transformative solution to address the GAO management integration findings and a mechanism to standardize business processes. It was essentially "this demand for process-oriented IT platforms [which] led to the development of ERP systems which essentially work at integrating major functional systems within the organization, e.g., financial."[51] ERP is defined as:

> An integrated, multi-dimensional system for all functions, based on a business model for planning, control, and global (resource) optimization of the entire supply chain, by using the state of the art Information Systems / Information Technology that supplies value added services to all internal and external parties.[52]

It is specifically the ERP elements of planning and control that impacted the Department's ability to successfully implement an ERP system. It can be argued that the legacy missions and cultures of DHS agencies—now components—of the newly formed Department, were impediments to standardizing and centralizing onto a single platform, lexicon, and configuration, which are defining attributes of an ERP system.

In November 2010, DHS made its final attempt at a financial ERP when it awarded a five-year, $450 million systems implementation contract for an integrated Oracle Commercial-off-the-Shelf (COTS) software system with additional, augmenting bolt-on COTS applications to address related functions, including property, procurement, facility, and project management.[53] However, the losing vendors protested the award.[54] The GAO ultimately upheld the protest and DHS was advised it would need to re-

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[50] Majed Al-Mashari, "Process Orientation through Enterprise Resource Planning (ERP): A Review of Critical Issues," *Knowledge and Process Management* 8, no. 3 (2001): 175–185.

[51] Ibid.

[52] Kees van Slooten and Lidwien Yap, "Implementing ERP Information Systems Using SAP," (paper presented at Americas Conference of Information Systems, 1999): 226–118.

[53] John S. Monroe, "CACI Nabs DHS Financial Services Deal," *Washington Technology*, November 20, 2010, http://washingtontechnology.com/articles/2010/11/20/dhs-tasc-financial-services-caci-award.aspx.

[54] David Petera, "DHS TASC Contract Award Comes Under Protest," *Fierce Government IT*, December 4, 2010, http://component.fiercegovernmentit.com/story/dhs-tasc-contract-award-comes-under-protest/2010-12-05.

compete the contract, setting the department back multiple years.[55] This was the third failed attempt at an ERP spanning nine years. DHS concluded that the differences across their Components' cultures, missions, and business requirements were not conducive for an ERP system. The Components' budgets associated with systems modernization, which had essentially been frozen since 2002 due to the pursuit of the ERP, were unfrozen in late 2012. This allowed the Components to individually and distinctly pursue systems tailored to meet their unique requirements. Upon ceasing its pursuit of an integrated, Department-wide financial, procurement, and asset management system in May 2011, DHS announced it would be exploring other options, including cloud-based systems, with a "focus on component-by-component development and non-integrated solutions."[56]

Around this same timeframe, federal guidelines were issued that significantly impacted how the department and its components could proceed with the modernization of its systems. These guidelines included the release of the United State's Chief Information Officer's *25 Point Implementation Plan to Reform Federal Information Technology Management* in December 2010[57] and *Federal Cloud Computing Strategy* in February 2011.[58] Because of these new guidelines, DHS recognized that "OMB requires cloud-based and service provider solutions be evaluated first and used whenever a secure, reliable, cost-effective option exists. With advances in IT security, DHS security architecture now expressly supports external services as an extension of the trusted internal environment. Thus, a cloud-based or shared services solution could meet the department's needs."[59]

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55 U.S. Government Accountability Office "Decision–Matter of Global Computer Enterprise, Inc.; Savantage Financial Services, Inc.," (File: B-404597) March 9, 2011, http://component.gao.gov/decisions/bidpro/404597.htm.

56 Alice Lipowicz, "DHS Cancels $450 M Financial System Modernization, Consider Cloud Instead," *Washington Technology*, May 18, 2011, http://washingtontechnology.com/articles/2011/05/17/dhs-cancels-tasc-financial-modernization-considers-cloud-instead.aspx.

57 Vivek Kundra, *25 Point Implementation Plan to Reform Federal Information Technology Management* (Washington, DC: The White House, December 9, 2010), https://cio.gov/documents/25-Point-Implementation-Plan-to-Reform-Federal%20IT.pdf.

58 Vivek Kundra, *Federal Cloud Computing Strategy* (Washington, DC: The White House, February 8, 2011), http://component.whitehouse.gov/sites/default/files/omb/assets/egov_docs/federal-cloud-computing-strategy.pdf.

59 Lipowicz, "DHS Cancels $450 M Financial System Modernization," May 18, 2011.

One additional guideline, which was released in March 2013 by OMB, was Memo 13-08 "Improving Financial Systems Through Shared Services."[60] This memo explicitly directs all executive agencies, "to use, with limited exceptions, a shared service solution for future modernizations of core accounting or mixed systems." This memo recognizes that all agencies will give consideration to the capabilities and gaps of the recognized cloud-based Federal Shared Service Providers (FSSPs) as the first source for satisfying its financial and mixed-system requirements. The impact of the U.S. CIO's aforementioned guidelines and OMB Memo 13-08 is that each DHS component is currently independently evaluating the individual FSSPs, of which there are seven. This approach could result in DHS having multiple cloud-based FSSP systems represented within its architecture. Each FSSP would potentially be responsible for one or multiple Components' accounting, acquisition, and asset management functions.

Once it was determined that each of the Department's Components would explore and pursue FSSPs, DHS had to identify a secondary strategy for consolidating and standardizing information associated to its Management Directorate's functions. DHS recognized the decentralized nature of its future-state transactional systems would require an integration strategy to meets its goals of consolidated analysis, reporting, and decision-making. To adapt to the decentralized architecture, DHS turned to a data warehousing and business intelligence initiative.[61] The DHS USM chartered and established the Business Intelligence Dashboard Executive Steering Committee in 2012, which was tasked with developing an integration layer across these applications.[62]

The DHS CIO was to formalize and mature a cloud-based Business Intelligence as a Service (BIaaS) offering. The USM viewed the BIaaS platform as a means to accomplish its strategic objectives and advised the Management Directorate's chief executive officers to utilize this service as a means to consolidate the data for which it has

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60 "Facilitating Agencies Transition to Federal Shared Service Providers," U.S. Department of Treasury, Bureau of Fiscal Service, http://www.fiscal.treasury.gov/fsservices/gov/fit/fit_fssp.htm.

61 U.S. Department of Homeland Security, *Integrating Line of Business Dashboards Internal USM Charter*, Washington, DC: May 2, 2012.

62 U.S. Department of Homeland Security, *Under Secretary for Management's Dashboard/Business Intelligence, Executive Steering Committee Charter*, Washington, DC: April 13, 2012.

oversight the DHS components. The chiefs independently proceeded with establishing projects, plans, and governance as a means of designing, developing, and populating their respective data warehouse and reporting/business intelligence solutions within the BIaaS platform. As the USM testified in March 2012, "These solutions provide robust business intelligence (BI) over disparate data sources, collating information to improve decision-making through access to accurate program data and metrics. Deploying business intelligence solutions across the financial management spectrum has improved Departmental compliance with the Chief Financial Officer (CFO) Act and DHS Financial Accountability Act, OMB guidance, other regulations, and Government accounting standards. I firmly believe that utilizing BI tools will improve the effectiveness of management and achieve compliance, performance, and quality improvement goals by providing:

- Enhanced access to key financial data across organizational boundaries,
- Key indicators of acquisition health that are data-driven and risk-informed, and
- Improved human capital and resource management to enable emerging organizational opportunities."[63]

In the USM's charter, he recognizes that the BIaaS applications would not meet their full potential without a mechanism to join and combine interrelated data from across all the Management Directorate's lines of business as a means to support cross-functional analysis and reporting.[64]

F. LITERATURE REVIEW SUMMARY

As the literature outlines, the pursuit of data as a prerequisite to the integration of management information is a long-standing strategic objective of DHS. The lack of this integrated information has been identified in GAO audits and by Congress as a critical

63 *Building One DHS: Why Can't Management Information Be Integrated: Before the Committee of Homeland Security, Subcommittee on Oversight, Investigations, and Management, House of Representatives*, 112th Cong. (2012). (testimony of Honorable Rafael Borras, DHS Under Secretary of Management).

64 Department of Homeland Security, *USM Asset Management Systems ESC*, Internal ESC Briefing, Washington, DC: February 11, 2014.

deficiency for DHS and has resulted with DHS being on the GAO "High Risk" list since 2003. Integrating management information has also been recognized as foundational to establishing a "One DHS."

While multiple technology strategies have been attempted since 2003, two primary strategies—"Systems Modernization" and "Information Consolidation"—continue to be pursued by the DHS Management Directorate in attempts to centralize and standardize data from across all entities comprising DHS. However, it is not clear if and how these current strategies are aligned with the organizational, people, and process facets of the DHS Components. Also influencing these strategies is the volume of DHS Components—each with their own unique cultural, legacy, and political considerations and constraints—and breadth and disparity of business functions falling within the scope of the Under Secretary of Management. Given these factors, the literature contends that success cannot be achieved without deliberately managing the change associated with these technology initiatives. It is also reasonable to conclude that change management was not suitably conducted in coordination with prior Management Directorate technology strategies.

Many studies argue that change cannot occur in isolation and that any change must be managed across multiple facets. Further, Harold Leavitt argues that change must be managed across four distinct points—organization, people, processes, and technology—of a diamond. Thus, for any technology strategy to succeed, it requires change management to align and assess the impacts of any strategy against these other three facets. As Leavitt's Diamond demonstrates, a change to any of these factors will impact one, multiple, or all these facets. "Studies have shown that when one of these facets undergoes change without the other three facets also changing either deliberately or unintentionally in response to it, the remaining three facets will actually respond in a way to minimize the newly implemented initiatives."[65] Therefore, for the purpose of this thesis, Leavitt's Diamond is an optimal model for analyzing how the Management

[65] Vincent, "Who Is Harold Leavitt … And Why Should You Care?" http://blog.richardlevinassociates.com/who-is-professor-harold-leavitt-and-why-should-you-care/.

Directorate's individual technology strategies influence the people, processes, and organization of DHS.

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III. MANAGEMENT DIRECTORATE'S LACK OF A DEFINED IDENTITY

A. INTRODUCTION

This chapter explores the formative years of the Management Directorate, which was created in conjunction with the establishment of DHS. The chapter identifies and delves into the organizational dynamics and factors that impacted the Management Directorate's initial focus and strategies, according to interviews with officials who led the Management Directorate during this time. There is also some discussion regarding how specific precedents set during the early years had cascading effects that continue to influence the Management Directorate's focus and mission in present day.

The data outlined within this chapter reveals that the Management Directorate was created in a highly political and turbulent environment with limited recognized authorities and significant constraints. The position of the USM was not a common position within other federal departments in 2003 when it was established for DHS. Therefore, there was no model or precedent for the early Management Directorate officials to use as a guide for establishing the organization's mission, focus, authorities, and relationships within the newly formed Department, or with the Components that were collapsed into it. The result yielded an organization with not only limited authorities, direction, and resources, but also leaders who were overly tasked in both the creation of the DHS and the establishment of an unprecedented Management Directorate.

After considering the background and environmental factors influencing the inception and early days of the Management Directorate, the remaining sections of this chapter discuss four specific interrelated impediments. These impediments were identified in the interviews as primary factors, which highly influenced the Management Directorate's operational model and strategies.

B. THE INCEPTION AND EARLY DAYS OF THE MANAGEMENT DIRECTORATE

This section first explores the reasoning behind developing the Management Directorate in conjunction with the creation of DHS, and then examines how this rationale translated into and impacted the execution of the Management Directorate's establishment. Interviews with many of the Management Directorate's early leaders reveal an environment with numerous operational and tactical demands and unique challenges.

The formation of DHS in January 2003 was the largest reorganization in the federal government since the creation of the U.S. Department of Defense in the late 1940s. The initial role of the Management Directorate was to "establish a center for comprehensive management leadership. The lack of such a focal point is a serious omission in most executive departments, resulting in the dispersion of responsibility for promoting effective management among numerous second and third-tier officials."[66] As Dean and Ink observe in *Meeting the Challenge of 9/11: Blueprints for More Effective Government*, "Only by creating a post at the Under Secretary [of Management] level with this broad scope of authority could a DHS secretary hope to shape this extraordinarily complex department into an organization that could operate effectively under stress."[67] Establishing the Management Directorate meant "building organizational structures and relationships to accomplish that [defending the homeland] mission. This meant integrating the numerous support functions of a new department. It meant working swiftly to get servers up, systems consolidated, and a stapler on every desk—all without moving forces from the protection of the country."[68]

However, one of the challenges associated with the USM position is that it does not have a peer counterpart within the DHS Components' organization structure. This position is also relatively uncommon within the federal management structure, so there was not a prototype that could be referenced for establishing the position or its

66 Stanton, *Meeting the Challenge of 9/11*, 10.

67 Stanton, *Meeting the Challenge of 9/11*, 105.

68 Stanton, *Meeting the Challenge of 9/11*, Forward X.

authorities.[69] This lack of a parallel USM counterpart, coupled with the fact that the USM position had no clear purpose or precedent in federal government, appears to have been an initial and contributing impediment in the maturation of the Management Directorate.

Furthermore, there was a notion consistently alluded to by interview participants which was best summarized by prior DHS CFO Peggy Sherry when she said: "Government is hard, but DHS is harder."[70] This challenge stems from the "obvious management problem that arises from the aggregation of so many entities with legacy missions that are both diverse and not entirely consistent with the overriding terrorism-related mandate given to DHS. Separate administrative systems and agency [Component] locations have further complicated effective consolidation."[71] As it pertains to the Management Directorate, there are numerous factors that have impacted its ability to develop an identity that aligns to its mission. That mission essentially tasks the Management Directorate with shaping a large, diverse, and complex Department into one that can operate effectively under stress, in addition to integrating its various support functions through establishing organization structures and relationships that will most effectively accomplish the Department's operational missions. Unfortunately, many of the impeding factors are rooted in the manner in which the Management Directorate was established and the events of its early formative years and have therefore become the institutionalized *modis operandi* and *de facto* precedents.

Janet Hale began serving as a Republican political transition appointee with the Department in November 2002, prior to its formal ratification in January 2003. She was formally appointed as the Department's first USM shortly thereafter. She was one of the primary officials responsible for crafting the structure and focus of the Management

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[69] Barbara Wamsley, "Technocracities: Can They Bell the Cat?" In *Making Government Manageable*, ed. Thomas H. Stanton and Benjamin Ginsberg (Baltimore, MD: John Hopkins University Press, 2004), 208–210.

[70] Peggy Sherry (former DHS Chief Financial Officer), in discussion with the author, August 31, 2015.

[71] Susan Ginsburg, "The Department of Homeland Security: Precluding Civil Catastrophe," in *The National Security Enterprise: Navigating the* Labyrinth, by Roger Z. George, ed. Harvey Rishikof. (Georgetown University Press, In Press, 2016), 4.

Directorate. She worked closely with the original Secretary Tom Ridge and strongly emphasized the importance of her complementary relationship with Secretary Ridge. Ms. Hale noted that despite a desire to focus on and emphasize the early establishment and integration of the Management Directorate's roles, responsibilities, and early strategies, the demands of the "foundational building blocks" and day-to-day operations of the Department regularly demanded her full attention and "there were simply not enough hours in the day." She noted that she was not only establishing and integrating a Directorate for which there was no precedent, but was also a key official in the initial creation of the entire Department—much of which was being consolidated from other departments and agencies (now referenced as "Components"). Ms. Hale described the Department's formative days "as the equivalent of a mergers, divestitures, dotcom, and start-up of an international conglomerate rolled into one." She also described many of the tactical activities involved in the formation and stand-up of the Department, such as recruiting and hiring staff, securing a physical DHS mailing address, and establishing a call center "to allow civilians to report terrorist attacks in the post 9/11 world." Additionally, as it pertains to the creation of the Department she pointed out:

> We had to figure out how to get the agencies into the Department—and in many instances out of their donating department—and determine how to bring every asset, every employee, every contract, and transition them off the books of the donating department and into DHS. So, all this information was coming in and we had limited resources [within the Department] available to do anything with this it…and little institution knowledge of what we receiving—all the while figuring out how we ensured all personnel were paid.

And despite these challenges, there were no delays in paychecks being released to DHS personnel. Ms. Hale discussed the lengths that the Management Directorate went to in an effort to ensure there were no disruptions in pay and noted "we couldn't expect to ask our frontline personnel to fight al Qaeda, while worrying about if they were going to be paid or not." She also noted that if paychecks were missed or delayed that it would have placed the Department in an untenable position right from the start, yet she also noted that very few realized the amount of obstacles that were faced just to ensure

paychecks were not disrupted during the transitional period of transitioning employees from their donating department's payroll system into DHS's system.

Ms. Hale also recalled the immense pressure, in large part due to commitments made to Congress (not by herself) that the new Department would be established with "no additional personnel" and would not detract from the missions of the agencies being collapsed into it. This point pertaining to "no additional resources" is substantiated by Susan Ginsburg who noted, "While Congress took the initiative in forming the Department, bargaining between the executive and legislative branches brought it to life. This produced only a qualified commitment to the department. The two branches agreed that DHS was to accomplish its initial consolidation with no net increase in the total funding that resulted from summing of each of the individual agency budgets."[72] Furthermore, Ms. Hale opined that the Department was provided adequate resources at its inception; however, these resources primarily manifested themselves in the form of contract dollars. It was the lack of federal personnel with institutional knowledge of the policies, processes and cultures from the organizations being collapsed into the Department that detracted from the ability "to establish an agile Department that was flexible and adaptable to the evolving threats of our advisories."

Further, the Management Directorate, as perceived by the Components, appears to be synonymous with Headquarters.[73] "The Components," as former USM Elaine Duke, stated in reference to the early years of the Department, "were at this time hunkering down and establishing their territories within the Department at the same time the Management Directorate was standing itself up and understanding its own territory."[74] She also explained the direct correlation between territories and appropriated funding levels. This dynamic stems from the "obvious management problem that arises from the aggregation of so many entities with legacy missions that are both diverse and not entirely consistent with the overriding terrorism-related mandate given to DHS. Separate

[72] Ginsburg, "The Department of Homeland Security: Precluding Civil Catastrophe," 2015, 3.

[73] Many of the research participants referred to the Management Directorate as "Headquarters" during their interviews.

[74] Elaine Duke (former DHS Under Secretary of Management), in discussion with the author, September 21, 2015.

administrative systems and agency [Component] locations have further complicated effective consolidation."[75]

Along those lines, the demands and politics involved with creating the DHS in in tandem with) the Management Directorate failed to serve the interests of the Management Directorate. As the Management Directorate's workforce was critical in leading and supporting the tactical activities of developing the Department, there was no opportunity to either focus on or resource the priorities of the Management Directorate effectively. Furthermore, workplace tension began to simmer, stemming from the Components' attempts to establish their presence within the newly formed Department while they also sought to understand the purpose of the Management Directorate and its effects on their existence and operations. The combination of these strains and constraints resulted in misalignment between the Management Directorate's intended purpose and the reality of its responsibilities, which established precedents that have been difficult to change.

C. THE ROLL OF DATA AND THE LACK THEREOF

A common theme that surfaced throughout almost all the interviews involves the dearth of management data that impacted the Management Directorate's ability to make informed decisions. This was especially true in the early, formative years. However, there were specific activities and demands for which the Management Directorate was responsible, which were contingent on having data. This section will discuss the ramifications of having neither the management data, nor the systems or processes from which it could be built upon, and how the Management Directorate responded to these challenges. The discussion regarding data from this timeframe involved two primary themes: 1) the lack of enterprise systems and, 2) the lack of data interoperability within the Components' data.

As the Department evolved, a significant amount of time and energy was eventually devoted to the formal transition and related recordation of systems, assets, and people from their donating (pre-DHS) agencies, such as Department of Transportation and Immigration and Naturalization Services, to DHS. A substantial amount of

75 Ginsburg, "The Department of Homeland Security: Precluding Civil Catastrophe," 2015, 4.

paperwork and records were generated to formalize these exchanges. However, with the exception of a human resources and payroll system, DHS did not have processes, procedures, or electronic systems pertaining to the capture and management of these records. Many of the interview participants acknowledged they did not know what data the Management Directorate had collected or where and how it was housed. It was recognized that the collected data was predominately housed on individuals' local computers in spreadsheets and that processes and security protocols associated with the data varied by individual offices and divisions. And while this issue was a point of concern for several of the interviewees, many noted that it just did not resonate as a critical issue when compared to the other pressing, more tactical, mission-specific priorities the Department was facing in the early years.

Despite this known lack of data, there were Congressionally required reports that needed to be produced by the Department, which were supposed to be representative of all of the Department's Components. One such required report was the Department's budget. Eugene Schied, who was the Department's first budget director within the Office of the Chief Financial Officer, was responsible for the initial years' budget processes and, thus, was tasked with generating this report to Congress. While the individual Components did submit their individual budgets, Mr. Schied noted that there was no clear way for the Management Directorate to create a "central" budget process during the first two years and that the initial internal attempt to do so did not occur until 2005. He described the conditions he faced in attempting to develop the budget in support of the Secretary in 2005 and noted some of the impeding factors included being completely dependent on email-driven data calls and a lack of controlling documents. He also cited as impediments 1) the high dependence on supplemental sources (as opposed to primary sources), 2) absence of tools or processes to validate the provided data, and 3) continued reliance on locally-housed spreadsheets where access control and version control were constant challenges. According to Mr. Schied, all these factors yielded a budget that had glaring and significant anomalies.

Mr. Schied also expounded upon the lack of data consistency and interoperability, a factor that is inherent to any process dependent on centralizing data from across

disparate stakeholder groups via unstructured data calls. He noted that despite using Microsoft Excel spreadsheet templates with standard column fields to conduct data calls, each of the Components applied their own interpretation and business logic to the data fields being collected. When consolidated into a single Departmental spreadsheet, the Components' data had significant discrepancies that clearly stemmed from a lack of consistent interpretation or business rules within the data. Mr. Schied recalled one instance where initial data suggested that minor programs within USCIS appeared to represent spending amounts larger than the U.S. Coast Guard's fleet recapitalization efforts—a conclusion that could never be the case, he said.

During this same 2004 timeframe, the Department was flagged for an Anti-Deficiency Act violation, which was primarily due to funding challenges associated with the stand-up of the TSA and the Federal Air Marshall Services (FAMS).[76] According to Mr. Schied, TSA required more than $1 billion in re-programming funds to meet their obligations, which the DHS Office of the Chief Financial Officer helped coordinate from across many of the other DHS Components. While DHS was ultimately successful in reprogramming the money to TSA, which was no small feat, the complexity and volume of the transactions required to do so resulted in an Anti-Deficiency Act violation for the Department. The Anti-Deficiency Act "prohibits federal agencies from obligations or expending federal funds in advance or in excess of an appropriation" and "once it is determined that there has been a violation of [this Act] 31 U.S.C. §§ 1341(a), 1342, or 1517(a), the agency head 'shall report immediately to the President and Congress all relevant facts and a statement of actions taken."[77] Anti-Deficiency reports "are to be signed by the agency head" and these reports are required to be submitted to the President via the Director of OMB.[78] These violations are of serious concerns and federal individuals involved with the violations are susceptible to administrative and penal

[76] Letter from Rep. Jim Turner (ranking member of the Select Committee on Homeland Security, U.S. House of Representatives, 108th Cong.) to the Inspector General of the Department of Homeland Security (June 14, 2004), http://www.govexec.com/pdfs/TurnerICELetter.pdf.

[77] U.S. Government Accountability Office, Anti-Deficiency Act website, Accessed October 28, 2015. http://www.gao.gov/legal/anti-deficiency-act/about.

[78] U.S. Government Accountability Office, Anti-Deficiency Act website, Accessed October 28, 2015. http://www.gao.gov/legal/anti-deficiency-act/about.

sanctions. Management Directorate officials viewed this Anti-Deficiency Act violation as the result of not having consistent, transparent processes across the enterprise for the oversight and execution of financial transactions and the management of Departmental funds.

The challenges associated with not having consistent, transparent Department-wide processes and lexicons were compounded, according to a Congressional report, by the fact that "some of the agencies transferred to DHS came with known serious financial management problems. For example, four of the major agencies transferred…had a total of 18 material weaknesses in internal control reported by auditors for fiscal year 2002."[79] Furthermore, as all the DHS Components except TSA were legacy agencies from other parent departments, they each brought with them their unique, legacy financial management practices, policies, processes, and accounting systems.[80] As a mechanism to overcome this fragmentation, Congress in 2004 passed the DHS Financial Accountability Act, which "incorporated this new agency into a series of existing financial management laws and required DHS to get a clean opinion on its financial statements and its internal controls over financial reporting."[81]

These drivers, along with similar challenges associated with major, high visibility processes and reports (e.g., budget formulation and budget execution reports), contributed to the common perception by officials from the Office of the Chief Financial Officer that a single, unified financial management system (UFMS) was necessary to the foundational management practices of the Department. Many of the research participant recognized that in a corporate merger—which is how DHS was initially viewed at its inception—migrating all parties onto a UFMS is a standardized best practice. Stacy Marcott specifically noted that, "in the initial stage of a corporate merger it is a standard textbook

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[79] Virginia A. McMurtry, Homeland Security Financial Accountability Act: History and Recent Developments (CRS Report No. RL32550) (Washington, DC: Congressional Research Service, 2004), http://congressionalresearch.com/RL32550/document.php?study.

[80] David Norquist, Peggy Sherry, Larry Bedker, "DHS: The Road to a 'Clean' Opinion," *Journal of Government Financial Management* vol. 63, no. 2 (2014): 38–46.

[81] Ibid., 40.

mergers-and-acquisitions practice to migrate everyone onto the same infrastructure and systems."[82]

Along those lines, the perception that a UFMS was necessary for DHS was further strengthened by the fact that a few of the early Management Directorate's leaders came from agencies that had operated enterprise-wide financial management systems. Two notable examples, one of whom was part of this research, include Janet Hale who came from the Department of Health and Human Services, and Bruce Carnes, who was the Department's initial Chief Financial Officer (non-Senate confirmed) and had started his career at the Department of Defense. Ms. Hale indicated that both she and Mr. Carnes had been accustomed to having timely, relevant data to help steer decision-making in their previous positions, and that the data was provided via a UFMS system. This factor—the familiarity with unified financial management systems—was reflected upon by Ms. Hale and many of the other participants during their interviews as greatly influencing the Management's Directorate's early focus on the UFMS model.

It was a culmination of all these factors that led the Management Directorate to pursue the acquisition of the eMerge^2 solution, which was targeted to be an integrated financial, procurement, and asset management ERP system. The eMerge^2 solution will be discussed further on in this thesis.

In conclusion, the general unavailability of management data and, in the limited cases where data existed, its non-interoperable nature impacted the ability of the Management Directorate to perform certain fundamental responsibilities on behalf of the Department. The inability to perform these duties, combined with leaders who were accustomed to having management data via a UFMS in their prior governmental positions, led these leaders to conclude that acquiring and deploying an ERP was the appropriate strategy for the Management Directorate going forward.

[82] Stacy Marcott (DHS Deputy Chief Financial Officer), in discussion with author, August 25, 2015.

D. MERGERS-AND-ACQUISITIONS AND ESTABLISHING THE MANAGEMENT DIRECTORATE'S WORKFORCE

This section discusses impediments associated with attracting, recruiting, and developing the initial Management Directorate's workforce. Additionally, it explores specific backgrounds and skillsets that were identified and targeted, yet unsuccessfully filled, which had implications on the Management Directorate's ability to establish its foundational strategies and merge its role across the Department.

USM Hale indicated that one of her early objectives was to recruit mid-level and senior-level managers from the donating departments and operating agencies that were being consolidated into the Department. Her intention was to build a team of subject matter experts with firsthand knowledge of the agencies' key back-end business functions, such as budget formulation and execution, accounting, human capital, information technology, security and acquisition. This approach would have two primary benefits for the Department and Management Directorate. First, it would bring the Components' authorities in specific management functions into the directorate to focus on establishing and scaling them across the enterprise. Second, it would establish credibility and pave the way for bridging relationships back to those agencies. However, Ms. Hale encountered many obstacles in establishing this workforce. One of obstacles stemmed from President William J. Clinton's "National Partnership for Reinventing Government," which was an interagency taskforce charged with reforming the way the federal government works and streamlining back-office governmental functions.[83] One result of this taskforce was a reduction in government workforce in the same business areas Ms. Hale was attempting to staff. Ms. Hale recalled entering an environment where she was looking to partner with the DHS Components at a time where they were attempting to adapt to a smaller workforce. "There simply weren't enough breathing bodies for these agencies to conduct their current workloads," Ms. Hale noted, "and we [the Management Directorate] were adding to it – or perceived to be adding to it." She further noted that asking the Components to invest their personnel's time to share their

[83] John Kamensky, "A Brief History," National Partnership for Reinventing Government (Washington, DC: January 1999) http://govinfo.library.unt.edu/npr/whoweare/history2.html.

institutional knowledge, support the Department, and deal with the reduced staffing models created some hardships. Another obstacle Ms. Hale encountered was that with exception of certain Components, such as USCG and USSS, there was minimal interest from the Components' subject matter experts in leaving their organizations to join DHS within the Management Directorate or other areas within headquarters. Ms. Hale recognized that many of the Components, including CBP, ICE, and TSA, were experiencing massive change themselves and were wholly focused on transitioning their own organization. Nevertheless, there was a perception shared by many of the interview participants that there was reluctance to contribute to the stand-up of the Department due to the view that DHS's creation was highly political and lacked long-term support. Along those lines, there was little confidence by the Components that the Department would be successful and few were willing to leave their agency to join an organization that as one author notes, "was hastily formed and was the product of as much political and policy conflict as consensus."[84]

As a result, Ms. Hale and the Department had to recruit officials from other federal government agencies and industry to fill these subject matter expert roles and to establish enterprise-level oversight. These roles were filled without significant personnel contributions from the Components, although these were the exact legacy agencies that would be ultimately impacted by the processes these individuals would establish. Ms. Hale turned to recruiting experienced personnel from other cabinet-level agencies, such as DOD, Department of Treasury, and HHS. However, tasking individuals who were not familiar with neither the Components' missions and stakeholders nor their policies and processes to establish the initial Departmental business policies and strategies was observed by many to be a set-back. Ms. Hale noted that not having these resource synergies in the initial establishment of the Management Directorate had longstanding and cascading cultural and organizational impacts, especially as it pertained to establishing the foundational relationships with the Components.

[84] Ginsburg, "The Department of Homeland Security: Precluding Civil Catastrophe," 2015, 1.

This dynamic is represented in the backgrounds of the participants who were interviewed. While two of the executives actually came from DHS Components, the vast majority of them came from other federal agencies, including the Department of Defense (3), Department of Treasury (3), General Services Administration (1), and Government Accountability Office (1). Many of the participants shared a general recognition that bi-directional rotational assignments (known as details) between the DHS Components and Management Directorate would have been valuable in bringing in critical mission context to the Management Directorate while conversely providing Management Directorate personnel an opportunity to gain firsthand insight into the Components missions and how the emerging policies and strategies would impact the Components. However, many of the participants expressed apprehension in pursuing this approach, pointing to several reasons—one of which included concern regarding the Components' receptiveness to these rotational assignments. Many of the interviewees emphasized the general unwillingness and reluctance to partner with the Management Directorate, especially as it pertained to the prospect of bi-directional rotational assignments. While the disinclination of the Components to pursue these rotational partnerships were not directly discussed, it was inferred that the Management Directorate's geographical and cultural disconnect from the Department's missions is a contributor to this reluctance.

Meanwhile, Ms. Hale also described how Components, including CBP and TSA, had contracted mergers-and-acquisitions consultants to assist in the strategy and execution of their own internal stand-up and transition into the Department. These "large international consulting firms were seen as the arms and legs" of these early Components and were largely responsible for the preliminary integration and strategy initiatives for these Components' individual headquarters functions. Ms. Hale noted she had sought a mergers-and-acquisition service contract for the establishment and integration of the Management Directorate into the Department, but while the requirement was ultimately filled, it did not provide the value it had anticipated due to challenges with the procurement and its oversight. Ms. Hale recalled recognizing significant value in the activities these firms performed on behalf of their customers in the early days of the

integration of the Components and their transition into the Department.[85] Ms. Hale said that not having a mergers-and-acquisition services contract comparable to those provided to CBP and TSA was an "opportunity lost" for having a force multiplier for driving enterprise integration and implementing more strategic focus and carving out the Management Directorate's role during the initial years.

Along the lines of needing to provide Management Directorate personnel access to the field and missions of the Department, USM Rafael Borras specifically noted that he established a "Next Generation Leadership" program, which executed a forum for providing visibility and access to mid-level Management Directorate employees to the DHS Components and their leadership. He said one facet of the program involved pulling these individuals "out of their cubes and taking them to where the Component's performed the mission," while at the same time providing them access to the leaders within the Components to see and hear firsthand about the DHS mission. Mr. Borras noted the importance of getting Management Directorate personnel occasionally out of the National Capital Region (NCR) "and away from the distractions and politics of D.C." to travel to Components' sites, and learn firsthand the mission-space where the Components performed. While this program appears to provide an opportunity for a handful of personnel to gain visibility of the DHS mission space, it is worth noting that only approximately 30 individuals participate in this program annually, which is a fraction of the Management Directorate's workforce (noted as now over 2,000 personnel).

The implication is that a significant majority of the Management Directorate does not have access or visibility into the DHS missions performed outside of National Capital Region. This creates challenges for those responsible for driving strategy and writing policy in that there is minimal visibility and understanding of the operational application of these strategies and policies. Additionally, more than one interviewee reflected on the connection and alignment to mission which Component personnel feel and are resistant to

[85] It is worth noting that Ms. Hale was so impressed with these firms she actually joined one of them, once her appointment ended with DHS. She was still employed with this firm at the time of her interview for this research.

leaving. Additionally, it was repeatedly noted that the Management Directorate's mission, while vital, has a tendency to be viewed by those across the Department as amorphous and fluctuating due to its reactive and unstructured nature, in addition to being seen as disconnected from the performance of the Department's actual missions (e.g., counterterrorism, immigration, travel security, cyber security, etc.).

Finally, it is worth noting that there is an appearance that the unstructured, reactive, and politically turbulent manner of DHS in general, but especially within the Management Directorate, contributes to poor morale. The Department as a whole has struggled with persistent and significant employee morale challenges, which have been on the decline since 2009 as measured in the Office of Personnel Management's annual Employee Viewpoint Survey. While employee morale has been a consistent concern of DHS leadership, the results of the 2015 survey ranked DHS last for employee morale (19 out of 19 for large agencies).[86] Employee morale contributes to the inability to effectively drive and lead enterprise-wide changes and results in high levels of attrition across the Department. Poor morale and high attrition may also contribute to the Management Directorate's inability to recruit and attract personnel who have crucial institutional knowledge of the legacy policies and processes and how they align to supporting the mission of the Department's Components.

In conclusion, there are many factors involving the Management Directorate's early workforce that influenced its ability to establish and perform its mission. The inability to recruit and attract resident subject matter experts from the Components to leverage and scale their expertise and establish credibility was a major setback. Further, the early Management Directorate was not only handicapped by having to establish a workforce lacking institutional knowledge and credibility, but was also unable to obtain specialized mergers-and-acquisition services. These services were perceived as critical to developing and instituting foundational strategy and establishing the early focus of the Directorate. Multiple other DHS Components successfully acquired and capitalized on these same services, yet the one that needed to integrate all the Components did not.

[86] "Best Places to Work Agency Index Scores," Partnership for Public Service, accessed October 5, 2015, http://bestplacestowork.org/BPTW/rankings/overall/large.

These factors, coupled with the fact that the Management Directorate is housed in the National Capital Region far from where a vast majority of the DHS missions are performed, has created an environment where the Directorate is perceived as disconnected and unfamiliar with the DHS missions.

E. THE IMPACT OF THE DHS MISSION ON THE MANAGEMENT DIRECTORATE

This section explores another factor, which has impeded the ability of the Management Directorate to focus and execute its intended mission. This factor wholly pertains to the event-driven nature of DHS. In other words, the support and oversight required by the Management Directorate's workforce for major events, combined with the sheer volume of events, such as hurricanes, supper storms, attempted bombings, and successful bombings, hat have occurred since the Department's inception, has greatly impacted the ability of the Management Directorate to perform its core missions. As one USM explained, the success and failures of the various Management Directorates' administrations cannot be evaluated without the context of the major events that occurred during their tenure.

In August 2005, just 30 months into the Department's life, two of the deadliest and most destructive storms to ever strike the continental United States—Hurricanes Katrina and Rita—touched down in coastal Louisiana, Mississippi and Texas. Ms. Hale explained that the emergency response and recovery missions associated with the aftermath of these storms were seen as the first "true emergency response test" of the Department. She went on to further recognize that much of the Department's attention to that point had been focused on the terrorist threat and that "the all hazards and natural disasters' response model had not yet been adopted."

And while she spoke of the significance of this initial test for DHS as a whole, she also spoke to its consequence in detracting from the initial strategies and focus of standing up the Management Directorate. She noted that the responsibilities required for the emergency response and recovery missions required all the focus, time, and energy of herself, her management team, and the majority of the Management Directorate's

personnel. This theme, corresponding to the impacts of DHS's event-driven culture on the ability of the Management Directorate to perform its core missions, was a consistent one expressed by many of the interview participants. In summary, while the DHS Components were inherently designed and staffed for responding to events as part of their core mission, the Management Directorate was leaned on to provide mission support and integration, which is a function not aligned to its core function or recognized in its staffing model. Therefore, when national events occurred, the same workforce that was responsible for executing the Management Directorate's core mission was also tasked with providing mission support and integration to the emergency response and recovery missions across the Department.

The impact of major homeland security events, such as the 2008 Hurricanes Gustav and Ike, the 2009 H1N1 flu pandemic, the 2009 Christmas Day attempted "underwear" bomb attack aboard a Detroit-bound flight, the 2010 concealed printer cartridge bombs, the 2010 Deepwater Horizon Spill, 2012 Super Storm Sandy, and 2013 Boston Marathon bombing, commanded DHS's—and by extension the DHS Management Directorate's—leadership attention. The responses to these events span the USM and each of the Management Directorate's lines of business, requiring time and resources from all levels of the organization. Many of the interview participants discussed the role DHS's event-driven culture has on detracting leadership attention from the development and implementation of strategy. This dynamic was best articulated by Elaine Duke when she noted, "Management [Directorate] has suffered because no one ever really defined if it is an operations or an oversight organization." Along those lines, Ms. Duke noted that in her opinion, "one of the mistakes made at the beginning of the Department was they did not develop a good line between what was Components' operations and what was DHS Headquarters." She went on to describe how not having this "good line" contributed further to a territorial atmosphere and substantial confusion surrounding the role of the Management Directorate's personnel in its relationships to the Components.

Ms. Duke went on to discuss how this lack of defined organizational mission impacts the Management Directorate and its priorities. To articulate her point, Ms. Dukes

referenced the Eisenhower Decision Matrix, as represented in Figure 2, and indicated that during her experience as CPO and USM, the Management Directorate appeared to operate in Quadrants I and III, where attention was given to topics of varying urgency, but questionable importance. However, she noted that there was limited time and resources to focus on activities associated with Quadrant II where strategies and planning emerge.[87] The inability to operate in this quadrant had a direct bearing on the Management Directorate's ability to establish, coordinate, and prioritize long-term strategies.

Figure 2. Eisenhower's Decision Matrix

Dwight D. Eisenhower is attributed with saying, "What is important is seldom urgent and what is urgent is seldom important" and for establishing the Eisenhower's Decision Matrix. There are numerous adaptations of this matrix found in the literature. One adaptation is provided and described by Drake Baer in "Dwight Eisenhower Nailed A Major Insight About Productivity" in a *Business Insider* article dated April 10, 2014 (available at http://www.businessinsider.com/dwight-eisenhower-nailed-a-major-insight-about-productivity-2014-4).

87 Elaine Duke (former DHS Under Secretary of Management), in discussion with the author, September 21, 2015.

To the point about the early territorial dynamics, another official (who requested not to be named) discussed the early relationship challenges between the Management Directorate and the Components and observed, "DHS wasn't even a loose confederation of agencies [when it was established], back then it was more like rogue nations that happen to find themselves on the same continent." This official went on to equate DHS to Europe in the post-Cold War era and the Management Directorate responsible for the establishment of the European Union.

It was while discussing her individual and the collective Management Directorate's role in the response to Hurricanes Katrina and Rita that Ms. Hale described one of her regrets as USM. She indicated that she should have organized the Management Directorate under three primary functions to include: Operations, Policy, and Integration/ Strategy. This structure would have resulted in numerous tactical and strategic benefits for the Department and Management Directorate, she stated. Ms. Hale offered some examples of the benefits this structure would have provided, including: 1) cordoning personnel away from the operations and response missions to focus on long-term and strategic Management Directorate priorities (a strain that many of the Management Directorate executives still recognize is a struggle), 2) establishing a consistent organizational structure for each of the Chiefs to emulate and use in the founding of their executive office and its priorities, and 3) forming inherent and parallel stakeholder groups within each of the Chief's offices as a means to drive integration and common goals across the lines of business.

When this organizational structure concept was posed to the other interviewees, many concurred with Ms. Hale's assessment, recognizing that this structure would be of value, and acknowledging a lack of organizational consistency and uniformity within and across the Management Directorate's chief executive offices. Many of the interviewees recognized that while a semblance of this structure existed within each Chief's office, it was not incorporated in a standard manner and, with some general exceptions, they were not aware if and how their Chief counterparts had organized around these three core areas. All participants agreed that the reactive and operational nature of the DHS missions, coupled with the breadth of oversight groups, required an organization where

segments of the workforce are allowed to focus on maturing the business functions in terms of writing policy, implementing oversight, conducting assessments, and identifying integration opportunities. One joked that "Management Directorate" was perceived as the "management of the National Capital Region" and went on to note the significant "time suck" that NCR operations had on the performing their other mission areas. Another participant recognized that the Management Directorate suffers from the "tyranny of the moment from which it cannot escape."

Additionally, Mr. Myers and Ms. Marcott both spoke about the critical importance of dedicating time and resources towards establishing and formalizing policy and developing strategy. It was emphasized that DHS is a chaotic environment that is highly reactive and tactical and that priorities tend to align with the political cycle. The political cycle is an important factor due to the fact that the DHS Secretary, Under Secretary, Chief Financial Officer and Chief Information Officer are each politically appointed positions. And while the "DHS Reform Act of 2007" states that the deputies of these officials shall be career appointees as a means for maintaining continuity across the political cycles, there have been numerous examples where this simply has not been the case. For example, from 2011 through 2014 both the Under Secretary of Management and the Deputy Under Secretary of Management were both political appointees.

Mr. Myers and Ms. Marcott also each noted the importance of ensuring an investment was made in strategic planning and activities that transcended the political cycle and were focused on initiatives five to 10 years in the future. It is worth noting that seven of the participants from this research were political appointees while at DHS. All, however, had prior federal government experience prior to joining DHS and many spoke of their commitment to public service and the DHS mission. In other words, despite being political appointees whose tenures were associated with the political cycle, many spoke of a deep commitment to the mission of DHS and desire to position it for long-term success.

In conclusion, the impact of major events has significantly influenced the ability of the Management Directorate to maintain focus and continuity on its intended missions. Furthermore, other factors, such as the influence and role of the political cycle and the

lack of a consistent organizational alignment around its core functions, have also combined to impede the Management Directorate's ability to effectively and consistently execute its missions across the Management Directorate. It is incumbent upon the Management Directorate's leadership, most notably the career appointees, to push an organizational model and long-term strategic initiatives that transcend the chaotic, reactive, and politically charged nature of the Department and allows the workforce to focus on executing them.

F. ROLL OF EXECUTIVE SECRETARY AND THE LACK OF INSTITUTIONAL GOVERNANCE

This chapter discusses the dynamic between the DHS Office of the Executive Secretary and Under Secretary of Management, with specific attention on how the individual priorities and leadership styles influence the Management Directorate's ability to engage with the Components and drive change. It explores how the lack of institutional governance, combined with the political cycle's influence on leadership attrition, impacts continuity of operations and execution of the Management Directorate's mission. It also addresses how this dynamic contributes to the perception that priorities are myopically and short-term focused due to the influence of the political cycle.

One of the more telling insights regarding the perceptions of the Management Directorate was revealed during an interview with Eugene Schied. Mr. Shied offers a unique perspective because he is the only research participant previously employed by the Management Directorate who currently works for one of the Components, CBP, where holds the position of CBP's Chief Financial Officer and Chief Administration Officer. Mr. Schied, when discussing the dynamic between the Management Directorate and their Component counterparts, observed "human nature is to take the path of least resistance to obtaining the objective." He went on to explain that because the Management Directorate's role and organizational governance was not formalized, the Components' interactions with Management Directorate stakeholders tended to fluctuate in response to how the Office of the Executive Secretary positioned them within the decision-making process.

Mr. Schied also noted that the involvement and priorities of the USM and DUSM—combined with the relationships of these individuals with the Secretary and Deputy Secretary—also contributed significantly to the level of engagement the Components had with coordinating with and through the Management Directorate. Mr. Schied explained that during certain Secretary administrations, the Components worked directly with the Office of the Executive Secretary with minimal inclusion of Management Directorate. During other administrations, he went on to note, the Secretary required Components to engage with and coordinate through Management Directorate prior to engaging the Secretary's office. When asked which model was more conducive for the Components, he responded "either one," explaining that the Components want a decision and are flexible to adapting their processes to whatever model provides them with a decision in an effective manner. Essentially, if the model necessitates the inclusion of the Management, then they will coordinate with Management. If either the Secretary or the process does not require the inclusion of Management Directorate, then the Components will forego their involvement. Mr. Schied made it clear his observations were not a reflection of the Components' perception of the Management Directorate or its personnel, but a desire to arrive at a decision in an expeditious manner. "It is just human nature," he said.

Other participants concurred with Mr. Schied's observations regarding the roll of the Management Directorate fluctuating with the preferences and styles of DHS executive leadership, and some offered specific examples of how the Management Directorate's role and authorities appeared to fluctuate based on the Executive Secretary (i.e., the Secretary's leadership preferences and relationship with the Under Secretary of Management). Many also noted that the authorities and engagement of the Management Directorate had a direct correlation to, as Ms. Duke put it, "the coalition of the willing." She explained that through her tenure as CPO and USM many hard-fought efforts were made to develop management policies and processes, but as she and David Norquist (DHS CFO during this timeframe) transitioned out as republican-appointed "politicals" (after President Obama won the election), many of their initiatives "slid back down because they had not been institutionalized and there was not a coalition of the willing

established behind them to push them back up." She clarified that this was a not a reflection on her successors, but a consequence of the leadership gap that emerges in conjunction with the political cycle.

As it pertains to the current DHS Secretary's leadership style, multiple participants observed that current DHS Secretary Jeh Johnson had a long-standing relationship with and had personally selected the current USM, Russ Deyo. This relationship, coupled with Secretary Johnson's perceived focus on developing Departmental processes, is currently bolstering the roll of the Management Directorate in the Components' engagement with the Department. It was also mentioned multiple times that the Senate-confirmed CFO who is also the current acting Deputy USM Chip Fulghum's focus on developing enterprise-wide processes is resulting in synergies for the Management Directorate, as he is able to yield more oversight and influence. However, equally mentioned was that the Obama Administration has little more than a year left in office and that the political appointees tied to his Administration, such as Mr. Deyo and Mr. Fulghum, have limited time remaining to accomplish and institutionalize their objectives before they begin transitioning out.

In conclusion, the lack of leadership continuity in conjunction with the lack of institutional governance contributes to an environment where the Management Directorate is further susceptible to the influence of the political cycle and the associated leadership turnover. These factors have a direct bearing on the ability to implement and institutionalize enterprise-wide, long-term strategic initiatives. It also creates an environment where Components are hesitant to invest in the initiatives and partnerships affiliated with the Management Directorate based on the uncertainty surrounding the next Administration's objectives and priorities.

G. FINDINGS AND ANALYSIS

The apparent lack of a defined set of authorities and institutionalized governance has left the role of the Under Secretary of Management ill-defined and fluctuating with the leadership styles and focus of the Executive Secretary and the individual appointed into the USM position. Additionally, the reactive, event-driven nature of the Department,

which—despite the Management Directorate's mission to be a strategic enabler for the business of the Department—has continually detracted leadership's attention and resources from the focus towards implementing and overseeing standardized policies, instructions, governance, and other business enabling tools and systems. These activities combined comprise what is perceived as one of the principal missions of the Management Directorate, yet they suffer due to the event-driven nature of the Department and other "urgent, but not important" competing priorities, such as the operational activities of the National Capital Region.

Meanwhile, the lack of a clear mission, leadership attrition, disjointed organizational structure, and fragmented priorities have left the organization as being perceived as lacking a consistent identity. This is especially true when contrasting the individual priorities and internal organization of the Management Directorate's lines of business as constructed under the chief executive officers. These offices were established without consistency and consideration to an overarching set of principles. With limited exceptions, these offices do not have consistent organizational alignment and lack integration. Because the organization as a whole suffers from too many priorities, cross line of business coordination of priorities has been a consistent challenge, due to a lack of shared venture in coordinating and executing priorities.

Striving towards a more standard, consistent organizational model focused on core mission areas of operations, policy, and integration and strategy within each chief executive office could result in increased integration, stakeholder alignment, more mature integrated policies, and a generally more coordinated and effective Directorate. It is worth noting that while there is a "Management Integration Office" within the Management Directorate, it appears from the data to be strictly in name only and lacks influence over strategy or actual internal integration of the offices comprising the Directorate. This office appears more to be an advisory group to the USM that focuses on external stakeholder coordination.

An early focus on IT systems—specifically enterprise-wide transactional systems—appears also to be commonly viewed as a misstep that detracted from focusing on these foundational activities. These transactional IT management systems initiatives

are contingent on a management operational model founded on standardized policies, processes, business rules and configuration. Given that these principles simply did not exist, these systems could have been successful without first having established the aforementioned foundational management principles.

All participants noted that the Management Directorate operates in an environment where data could not be collected and analyzed in a consistent and standardized manner. The result is an environment where data, if it exists, is managed in silos and is not regularly available for leadership consideration in the decision-making process. Many participants indicated that systems-generated data was not even a consideration for them when making a decision during their tenure.

It was these contributing factors, combined with the extensive consolidation of numerous large legacy agencies that led the GAO to assess DHS as high-risk for lacking "Management Integration" in 2003. While DHS, led by the Management Directorate, has made significant strides in addressing some of the root issues and early documented challenges, it currently remains on this high-risk list a decade later.

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IV. MANAGEMENT DIRECTORATE'S ROLE IN POLICY, OVERSIGHT, AND GOVERNANCE

A. INTRODUCTION

It was recognized in the previous chapter that the Management Directorate suffers from an ill-defined fluctuating mission space, which is rooted in the lack of institutional governance and having to balance too many priorities, but it should also be noted that there have been consistent efforts to address these issues. One area of focus emphasized during the interviews is that the Management Directorate does have the apparent authority to conduct oversight and assess performance. It was clear the research participants perceived one of the Management Directorate's core missions as not only establishing management policies and instructions, but also conducting oversight and assessing performance of them.

This chapter discusses tools the Management Directorate should pursue and utilize to effectively establish the capabilities to perform this core mission, in addition to integrating the business functions aligned under the Management Directorate's lines of business. There was consensus among participants that instituting consistent principles and practices were predicated on having clearly defined, formalized delegations of authority, policies, and management instructions. Despite the fact that officials from every Executive Secretary's administration seemingly recognize the importance of having these governance documents solidified, there have been consistent challenges in getting them drafted, reviewed and cleared in a timely manner. This issue will be further discussed later in the thesis. But while progress has been slow is this area, there has indeed been progress—and participants provided examples demonstrating how the maturation of the authorities, policies, and instructions translated into more consistent, rigorous business practices for the Department. Along these lines, one specific area of value that will be discussed in this chapter is the use of industry/government standards as an integral part of instating policy and management instruction.

The ability to utilize audits as a change agent emerged as a key theme throughout the interviews. An audit presents numerous opportunities, which, if leveraged

appropriately, can provide both tangible and intangible benefits to the Management Directorate as well as partnership opportunities with the DHS Components. This chapter will discuss the opportunities presented by these audits.

Furthermore, there are integration and governance-enabling tools that the Management Directorate has the authority to utilize and has invested in establishing. These tools include enterprise portfolio governance and enterprise architecture, which were regularly cited as foundational in their ability to transform, mature and integrate the Department's management functions. However, these tools have not had their intended effect. This chapter will explore these tools in an attempt to better understand why they have not been able to be institutionalized.

B. COMPONENT ENGAGEMENT FACTORS

This section discusses how the Management Directorate should engage with and execute its authorities over the DHS Components with specific attention on the various options that were given consideration. While there was not a defined model that was recognized as the best, there were models that were identified as ill-suited when given consideration to other cultural and environmental factors.

It was specifically stated that despite invitations by Congress to do so, the Under Secretary of Management declined to adopt a "command-and-control" model in which the Components would have a "dotted line" reporting structure to the USM. On this point, Mr. Borras asserted that declining this model was the "right decision as it would have resulted in a formal reporting model that would have contributed to another level of bureaucracy in an organization where there is already too much of it."[88] Additionally, it was further noted by Mr. Borras that attempting to drive enterprise-wide standardized operating procedures (SOPs) also would not have been successful within DHS. Mission disparity and legacy processes and systems within the DHS Components were cited as prohibitory to establishing SOPs.

88 Rafael Borras (former DHS Under Secretary of Management), in discussion with the author, August 27, 2015.

The lack of a command-and-control model combined with a lack of SOPs appears to handicap the Management Directorate's authority and ability to influence change. However, when asked which tools the Management Directorate should be utilizing to conduct oversight and drive change, multiple participants pointed to needing to have the "right" policies and directives in place, combined with the ability to assess and conduct oversight of the Component's processes as aligned to the Management Directorate's lines of business. Additionally, the use of audits, governance, and enterprise architecture were also noted as tools that should be further utilized, which will be discussed later in this chapter.

C. DEVELOPING THE "RIGHT" POLICIES

This section will explore a core theme that was identified consistently and repeatedly during the interviews and involves the role of the Management Directorate in formalizing delegations of authority, publishing policies, establishing management instructions, and conducting oversight. Each of the interviewed USMs noted that during their tenure there was recognition that the current delegations and policies were ambiguous and lacked a level of clarity and definiteness. Each indicated a strategic focus on driving the Management Directorate's Chiefs toward developing, revisiting, and formalizing their policies (also known as "management directives") and management instructions as a key objective of their administration. However, it was noted there were numerous obstacles into accomplishing these objectives.

One obstacle included significant pressure exerted on the Management Directorate by DHS Components and other stakeholders to keep policies written at high, generic levels and in deference to existing federal regulations, such as the Federal Acquisition Regulations and Financial Management Regulations, which are fundamental, mission-agnostic regulations that are supposed to be the foundation of departmental policies but not the totality. Many of the interview participants recalled submitting more rigorous policies through their policy review governance boards, which are comprised of Component representatives and other Management participants, only to have the policies emerge diluted.

Attempting to find a balance between the Management Directorate's desire for auditable, definitive policies and instructions as compared to the Components' desire to tailor policies towards their mission and culture contributed to time and resource-intensive processes tied to the development and clearing of policies. The fact that each USM between 2003 and 2014 identified the need for more granular, audit-ready policies and instructions is an example of the challenges the Department faces in this area and would appear as a contributing factor to why DHS remains on the GAO high-risk list due to a "lack of management integration."

Another factor contributing to the inability to expeditiously clear new management policies and instructions is the breadth of stakeholders involved in the review and clearance processes. In addition to the Management Directorate's line of business that owns the policy and, if it existed, the corresponding policy review governance board, other stakeholders influencing the clearance process include the Management Directorate's front office and legal office, the DHS Office of Policy, and the Office of the General Council. The dynamic between the DHS Office of Policy and the Management Directorate has also been a long-standing point of confusion. The Management Directorate is tasked with developing policy and conducting oversight of its core lines of business Department-wide, yet there is a whole office within DHS headquarters dedicated to policy. Former USM Elaine Dukes noted that the relationship and boundaries between the Management Directorate and the Office of Policy was seen as an impediment as it pertains to developing and clearing policies in an effective and timely manner.

Recognizing these delays in the clearance process, Scott Myers—in his time as Deputy Chief Readiness Support Officer—said that to overcome these obstacles with issuing new policies he would regularly release and distribute policies and instructions to the Components in "draft" form (with a watermark indicating as such) while these documents were still in the formal review process.[89] Despite the fact that these items were in a draft state, he explained that he referenced them and began to operate as if they

89 Scott Myers (former DHS Deputy Chief Administrative Officer), in discussion with the author, August 26, 2015.

were already formally recognized with both Management Directorate and Component stakeholders. Mr. Myers noted that, notwithstanding their "draft" watermark status, he was successful in positioning these policies and instructions as if they were in a final state with minimal resistance. When these documents were eventually cleared and formalized, he simply would capture any changes, which were typically marginal, and remove the "draft" watermark from the most current version. His position was that the published draft version had been sufficiently recognized and propagated and that the formalization of the artifact was strictly ceremonial by that point. However, irrespective of available workarounds, almost all participants referenced the inability to efficiently and effectively clear new policies and instructions as a source of frustration.

As it pertained to developing "audit-ready" policies, Mr. Borras recalled a specific example when the Management Directorate was preparing a response to a GAO audit. Mr. Borras recounted how he pulled out the corresponding policy and walked through it with his leadership team to determine if he could get consensus of its meaning and interpretation within his team. When he could not, he used it as a challenge to his Chiefs to develop policies that were more granular, definitive, and could stand-alone—meaning they did not require significant interpretation.

Furthermore, a handful of the interview participants noted a desire to drive their policies and instruction towards including references to industry-defined standards, such as those published by the ISO and ASTM standards bodies. In fact, Mr. Borras said he wanted to get one of the Management Directorate's core business processes ISO certified as a means to demonstrate "that government had the ability to operate at an optimal performance standard as defined by industry." While obtaining this ISO certification was never achieved, those executive participants who served under Mr. Borras recognized that significant strides were made with fortifying policies and directives. And while the use of standards was in fact the goal, Mr. Borras clarified that striving towards "optimal standards" was his actual goal.

Along those lines, Mr. Myers provided an example of how industry standards were used to assist in the fortification of management instruction. His example pertained to a situation when DHS was facing an OIG audit regarding to insufficient inventory

controls associated with the Department's personal property to include its most sensitive property—firearms and weapons. Turning to ASTM voluntary consensus standards, Mr. Myers was able to target a published standard known as "Equipment Control Classification" that provided a methodology for categorizing property into tiers of criticality and risk and which aligned the tiers to the appropriate level of accountability controls. Mr. Myers tailored the methodology defined in the ASTM standard to the Department's personal property inventory and formally referenced the standard as applied to DHS within its corresponding Management instruction. This approach was successful in demonstrating to the auditors how DHS would implement and differentiate appropriate levels of accountability controls for categories of property that assumed the most risk (e.g., weapons and firearms). The ability to base this approach on industry-recognized standards helped streamline the implementation and review processes, because it carried an industry-recognized authority.

In discussions with Mr. Schied pertaining to the role of the Management Directorate, he noted that the use of standards established and propagated by the Management Directorate had demonstrated value to the Components. One specific example Mr. Schied used was the Department's "Square Footage Space Standard," which essentially specified that the average square footage allocated to each person was 150 square feet. What Mr. Schied appreciated was that while the Management Directorate would provide options and support pertaining to how to accomplish this standard, it was contingent on him to tailor and align it to the unique organizational and mission factors within CBP. This balance of having a "Headquarters" driven standard, but allowing it to be applied by the Components to their distinct mission is critical. Mr. Schied went on to explain that having this specific space standard has provided him a catalyst to engage the mission owners to assess their actual real estate requirements and best fit their space to the mission. The result has been a reduction in the real estate footprint and the associated operational costs. The savings from these business costs has translated directly back to more funding for the mission programs. Mr. Shied noted that he cannot take a blanket approach to this model and must adapt it to the individual CBP mission program, which demonstrates that there needs to be contextual and operational considerations when

applying these standards. In summary, he acknowledged that the use of Headquarters-established standards, such as the square footage space standard, coupled with the opportunity to apply and implement them in consideration of the mission requirements was providing a model where "business can complement and better enable the mission of the Components."

In conclusion, Mr. Borras referred to the focus on developing exacting delegations of authority, management policies, and instructions, which should look to industry or government standards when applicable, as "the hard-wiring and plumbing of the Management Directorate." He noted that this is the "unsexy work that will never be seen or recognized by Congress or garner any attention in the form of a journal article," but which is crucial for establishing the necessary authorities and defining the rules and structures from which the Management Directorate can execute and operate. However, it needs to be recognized that these activities will never be complete—the hard-wiring and plumbing will never be finished—and will require consistent, continual investment and management by the Management Directorate to integrate and mature both horizontally and vertically in its business areas.

D. OVERSIGHT AND ASSESSMENT

This section will discuss the Management Directorate's "Assessment" authority, which was identified as a primary tool for the Management Directorate to engage the Components and conduct oversight. This "Assessment" authority is especially relevant given consideration to the lack of a command-and-control structure or ability to pursue SOPs. However, there was acknowledgment from the interview participants that that ability to engage with the Components for oversight purposes must be done in a nuanced and deliberate manner.

Although a common theme within the interviews, Mr. Myers summarized it best when he described that Management "Assessment" authority should be used as a mechanism to engage the Components in a forum based on the clarification, interpretation, and implementation of the Management Directorate's policy and instruction. Mr. Myers—along with others—were emphatic that these assessment forums

could not be used for punitive means or as the basis for criticizing the Components. Many participants emphasized that developing a collaborative environment with the Components was key and required an environment of trust, respect, and transparency. And despite many of the Components' positions, it also requires collective recognition that the Management Directive does, in fact, have the authority to conduct assessments. However, this environment needs to emerge from a position where Management Directorate officials recognize that despite being the policy owner and considered "Headquarters," they are not the authority or more knowledgeable than their Component counterparts. Since the Components play a critical role in tailoring and implementing the Management Directorate's policies and instructions to their respective mission and operational space, a collaborative partnership model based on the recognition of Management Directorate's assessment authority is crucial to this relationship. This partnership model is also critical for mitigating identified audit findings, removing DHS from GAO's high-risk list, and developing a Departmental "Unity of Effort" culture.

The use of audits and the relationship between the Management Directorate officials and audit stakeholders, such as the GAO and OIG, was also noted as a key factor in managing change. Mr. Norquist recognized that the Management Directorate oftentimes has limited access to "carrots or sticks" from which to drive change across the Components. However, audits are indeed one of the few mechanisms from which change, if managed appropriately, can be shaped and instituted. It was recognized that once the Management Directorate learned of an emerging audit that was to be conducted, an effective practice was to engage and partner with auditors to help drive change in specific areas of concern. In other words, the Management Directorate did not request or initiate audits, but once initiated by the GAO or OIG, would attempt to influence them through partnering with the auditors to steer them towards areas of strategic focus and value for the Department.

Additionally, it was emphasized that Management Directorate officials did not view audits as targeted strictly at the Components. On the contrary, it was noted that an audit of a Component or business function was a reflection on—and in some manners an audit of—the Management's Directorate's associated line of business, because it had

equities in the audit findings and are ultimately the policy owner. In fact, Mr. Myers explained he would often use an audit as a mechanism for taking on some of the liabilities stemming from the findings, as opposed to allowing the findings to be focused solely on the Component. He said he would "buy some liability" from the auditors and Components. He explained his thought process was that by establishing a sense of "shared liability," he was contributing to a shared sense of ownership and developing a partnership model that would not only benefit the Department in responding to and mitigating the audit findings, but would also establish a relationship of camaraderie with the Components that could be used in other strategic areas.

One of the more common, specific audit findings assessed against the Management Directorate is that it lacks sufficient assessment tools from which it can conduct oversight. This inability to conduct oversight contributed to the perceptions of many Management Directorate officials, especially in the Department's early years, that implementing enterprise-wide IT systems was a requirement for addressing these related audit findings. However, the ability to successfully conduct oversight was recognized as being highly dependent on and intertwined with data. In other words, in lieu of actually conducting first-hand assessments, the collection and analysis of standardized data is required for the purposes of the Management Directive's assessments. However, a prerequisite of successfully collecting and normalizing information in a confederated environment, as is DHS, is having defined and institutionalized data dictionaries, business rules, reporting requirements, and reporting systems, which need to be established upon legislative, regulatory, and policy requirements to be effectively and consistently adopted and institutionalized. As will be discussed later in this section, DHS has been unsuccessful in acquiring and implementing enterprise-wide transactional business systems from which this type of information can be captured and collected.

In conclusion, while traditional mechanisms for driving change have not materialized for the Management Directorate, there are indeed instruments available to institute enterprise-level change. The Management Directorate's authority to conduct oversight and perform assessment is foundational to driving this change and performing its mission. The ability to perform its oversight and assessment duties is predicated on

having clear, defined policies and instructions, which has been a long-standing area of focus for the Management Directorate. Additionally, the ability to influence and steer emerging audits and utilize them as a reflection of both its own policies and instructions and the Component's performance is another mechanism which is proving successful in building and maturing synergies between the Management Directorate and the Components. This oversight and assessment model, combined with altruistically engaging around shared risks and shared interests, appears to be the one best suited to the Management Directorate.

E. REGULATORY REPORTING AS A SPRINGBOARD TOWARDS OVERSIGHT

The use of management instructions, which are individual documents used to augment an associated policy to define more prescriptive, process-level guidelines, to define reporting requirements and standards has been a key tool used to begin driving standardized data definitions across the department. The Management Directorate, albeit in the confines of its individual lines of business and not until the 2010–2011 timeframe, started using directives and instruction as a means to define a standard lexicon and associated set of standardized business rules.

Re-enforcing this approach was the decision to consolidate and centralize the annual reporting requirements associated with regulatory oversight bodies, such as the Government Accountability Office, Congress, and the General Services Administration. Historically, in many cases the Components would report their data directly to the corresponding reporting tools and, while there may be in some cases an opportunity to review the data, there was no ability for the Management Directive to validate, influence, or normalize the data from across all the Components. These regulatory reporting requirements, which are typically based on the government's Fiscal Year schedule, was perceived as an opportunity by the Management Directorate to consolidate data and to institute oversight measures surrounding the reports' corresponding data elements.

For example, for the purposes of reporting each Department's federal real estate footprint, OMB has established the Federal Real Property Council (FRPC) as the

authoritative board for establishing and defining the data elements and associated business rules that federal agencies will utilize to report their real estate to OMB into a system referred to as the Federal Real Property Profile (FRPP). As opposed to each DHS Component reporting directly to this system, Mr. Myers determined that the Components would report their data to the Management Directorate where it could be verified, validated, and analyzed not only for reporting purposes to the FRPP, but also for other analytical and decision-making purposes. It was these regulatory reporting requirements that formed the basis for the Management Directorate to begin collecting data in a consistent and standardized manner. The fact that OMB established these requirements provided a change agent that DHS typically lacked when attempting to move towards obtaining standardized data. This FRPP example is just one of many regarding how the Management Directorate began utilizing regulatory and legislative requirements as a mechanism to collect data and was the foundation for future strategies associated with information consolidation. Further, in lieu of enterprise-wide systems and a lack of access to the Component transactional source systems, multiple interview participants emphasized the importance of using regulatory reporting requirements as a means to drive towards data standardization.

F. ROLE OF ENTERPRISE PORTFOLIO GOVERNANCE

A common frustration identified by many of the participants, but most commonly by individuals associated with the Chief Information Officer, was the lack of institutionalized governance used by leaders at all levels of DHS. Mr. Spires specifically noted an example of sitting in meetings at DHS Headquarters with more than 70 leaders from across the Department and discussing strategic objectives. He recalled being frustrated with how each Component approached their missions in isolation with little functional relationship to other Components that operated in the same mission space.[90] He also recalled being discouraged with the amount of anecdotal evidence used and the lack of data being used to quantify decisions. He went on to note the example of how in one DHS mission labeled "screening of people," there was no less than five DHS

[90] Richard Spires (former DHS Chief Information Officer), in discussion with the author, September 11, 2015.

Components involved and playing a significant role. Yet, regularly at meetings involving the senior-most leaders of DHS, there was little discussion, organization, and planning towards an integrated approach to fulfilling mission objectives in a unified and confederated manner. This lack of a cohesive approach to the missions was an area that Mr. Spires felt could be significantly improved through the adoption of enterprise and portfolio governance, which was a core priority during his tenure as the DHS CIO.

The interviews revealed that when considering the role of the political cycle, combined with the high-level of attrition DHS experiences within its leadership ranks across its 22 Components, the lack of institutional governance is a significant impediment. To this end, Ms. Sherry noted an instance when she was DHS CFO and had to drop everything she was doing to ensure that she got a signature from a specific Component executive before his planned departure from a DHS Component. She explained how if she had not been able to get the signature of the exiting official, it would have stymied her ability to move the initiative forward because the Component would not have endorsed any progress until the position was formally filled. It is important to note that filling this vacancy, as is typically the case in government hiring, could take anywhere from many months to more than a year. Cases such as this, where the ability to move initiatives forward is directly associated to individuals and the personal relationships between the Management Directorate's and Component's leaders, demonstrate the impacts of not having an institutionalized enterprise governance from which decisions can be facilitated. Meanwhile, other participants also reflected on the importance of personal relationships as a key driver of success within the Management Directorate and across the Department in lieu of formalized governance.

Mr. Spires said the objective of enterprise governance is "at its core, to have key executives across the enterprise determine the optimal allocation of capabilities and resources across programs to best support the achievement of mission outcomes."[91] He further explained that this involves bringing executives engaged in discussing the

[91] Richard Spires, July 11, 2011, blog posting on CIO.gov, "Enterprise and Portfolio Governance Critical to Ensure IT is Strategically Supporting Your Agency," https://cio.gov/enterprise-and-portfolio-governance-critical-to-ensure-it-is-strategically-supporting-your-agency/.

alignment capabilities, functionality, and investments necessary to deliver the mission and requirements in the both current mission environment, as well as the projected future state (e.g., five years out). This governance—especially in federated organizations, such as DHS—requires reinforcement through the use of enterprise architecture and organization into distinct portfolios. Portfolios are the logical organization and decomposition of functionally-oriented segments that are used to categorize and "support various elements of an organization's strategy and mission outcomes."[92] Portfolios can be either mission-oriented or business-oriented. Examples of mission-oriented portfolios within DHS would include screening, incident response, and cyber security, while examples of business-oriented portfolios would include financial management, grants management, and asset management. Portfolio governance establishes portfolio-specific boards with executive decision makers from all stakeholders groups involved with a specific portfolio.

The term "enterprise architecture" is recognized in industry as having numerous and conflicting interpretations that vary by industry. It is also a term readily confused because it is regularly used to reference change processes as well as a suite of documentation artifacts. Gartner Research defines "enterprise architecture" as "the process of translating business vision and strategy into effective enterprise change by creating, communicating and improving the key requirements, principles and models that describe the enterprise's future state and enable its evolution. The scope of the enterprise architecture includes the people, processes, information and technology of the enterprise, and their relationships to one another and to the external environment. Enterprise architects compose holistic solutions that address the business challenges of the enterprise and support the governance needed to implement them."[93] Contributing to the confusion surrounding enterprise architecture and its purpose is that it is viewed as a predominantly information technology function. This is because oftentimes in federal agencies, including DHS, the enterprise architecture function is aligned under the Office

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[92] Ibid.

[93] Anne Lapkin et al., "Gartner Clarifies the Definition of the Term 'Enterprise Architecture,'" (Gartner Research, ID: G00156559, August 12, 2008) https://online.ist.psu.edu/sites/gettingstarted/files/gartnerclarifies.pdf.

of the Chief Information Officer. However, as this definition indicates, technology is only one of many entities influencing the establishment of an organization's enterprise architecture.

The role of enterprise architecture was discussed with the majority of the interview participants. And while the concepts and purpose of enterprise architecture were generally understood, there was also agreement that enterprise architecture was not appropriately positioned and represented within the decision-making framework, outside of those aligned with the CIO. It was specifically noted multiple times that while the DHS enterprise architecture was perceived as "relatively good" and had adequately defined 13 distinct portfolios, it was not effectively positioned or recognized in governance as a strategic enabler for defining and assessing the requirements pertaining to moving a portfolio from an "as-is" state to a "to-be" future state. To this point, Ms. Hale pointed out that the initial focus on the acquisition and implementation of systems, as opposed to defining and positioning enterprise architecture as a strategic enabler for Departmental decision-making related to investments and capability maturation, was an opportunity lost.

The critical aspect of institutionalized enterprise governance is that, if implemented and reinforced at the highest levels of the organization, it can help frame cross-organizational missions and can be "utilized to regularly brings together the senior-most leadership to both help decide which new capabilities best support the mission and prioritize them for development and fielding…Mature enterprise governance is focused on all capabilities to produce mission outcomes, and, as such, enterprise governance is not specific to just IT programs."[94] One specific example of how portfolio governance can influence the Department's migration toward data-driven decision-making is by establishing the Key Performance Indicators (KPIs) associated with each portfolio. Multiple participants explained that program governance boards, when properly instituted and governed, provided the ability to drive performance metrics throughout the

[94] Spires, "Enterprise and Portfolio Governance Critical to Ensure IT is Strategically Supporting Your Agency," https://cio.gov/enterprise-and-portfolio-governance-critical-to-ensure-it-is-strategically-supporting-your-agency/.

organization. KPIs provided one mechanism to collect and measure standardized data from each stakeholder involved in the portfolio. And while portfolio governance boards were not consistently adopted within the Management Directorate, there are examples of success within the financial management and readiness support functions where they have been utilized to drive meaningful change and standardization.

The lack of institutionalized governance has cascading impacts, especially when giving consideration to the fact that additional "statutory authorities and compelling events have combined to broaden perceptions of DHS's mission" since the formation of the Department in 2003.[95] Along those lines, "Congressional and public expectations for civil security have surpassed terrorism and migration control to encompass natural disasters, high impact industrial accidents, and cybersecurity. This gradual expansion of actual and accepted mission scope has followed the course of destructive events."[96] However, "DHS does not benefit from a central theory or an updated legislative mandate that sets out an overarching purpose."[97] The "lack of an articulated, coherent, commonly accepted strategic mission increases DHS's susceptibility to fragmentation, failure to prioritize, misguided tactics..."[98]

Mr. Spires noted that he pushed hard, albeit unsuccessfully, during his tenure to establish a top-down three-tiered portfolio governance model built around portfolios. He reflected on his ability to achieve this governance model in large private sector institutions and at the Internal Revenue Service, where he worked prior to joining DHS. When asked about the differences between these institutions and DHS with respect to the ability to institutionalize governance, he responded, "Culture. The difference is all culture." When asked to elaborate, he indicated the differences involve the ability to position and enforce the [position of the DHS] CIO to utilize the authorities provided to

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95 Ginsburg, "The Department of Homeland Security: Precluding Civil Catastrophe," 2015, 2.

96 Ibid., 2.

97 Christopher Bellavita, "Waiting For Homeland Security Theory," *Homeland Security Affairs* 8, Article 15 (August 2012), https://www.hsaj.org/articles/231.

98 Ginsburg, "The Department of Homeland Security: Precluding Civil Catastrophe," 2015, 2.

him under legislation, which at DHS was not necessarily provided or supported in the manner it was at these other organizations.

G. FINDINGS AND ANALYSIS

The ability to draft and formalize governance documents in the form of policies, instructions, and directives has remained a constant, drawn-out challenge for the Management Directorate. Despite the fact that these objectives have been a long-standing priority voiced by each USM's administration, the breadth of stakeholders and their respective agendas have been prohibitory in producing these documents. In cases where they have been produced, the documents have emerged diluted and altogether lacking the prescriptive granularity that the Management Directorate originally intended. These foundational activities are commonly viewed as the "hard-wiring and plumbing" of the Department that need to be continuously pursued and would benefit from streamlining. Delineating the roles and responsibilities between the Office of Policy, the Components, and the Management Directorate—and various divisions within it—as they pertain to producing management and business policies could result in more efficient and effective processes to allow these documents to be published and formalized in a quicker manner.

Looking to industry and/or voluntary consensus standards, such as those represented by the ISO, NIST, and ASTM standards bodies, could provide an accelerant to this process. The very nature of standards is that they include an inherent level of industry and/or government accreditation and rigor, which would benefit the Management Directorate in gaining concurrence from across the various internal and Component stakeholders. This research demonstrated multiple successful examples of a model where the Management Directorate established and propagated standards that could be applied and implemented by the Components. This model is critical because it provides the Components the ability to adapt these standards within the context of their distinct programmatic and mission requirements.

The Management Directorate has deliberately avoided a command-and-control model and opted not to pursue standardized operational procedures. These decisions, which are justifiable given the organizational and cultural dynamics, impact how the

Management Directorate can engage the DHS Components to drive change. In fact, this lack of defined, understood boundaries has been historically detrimental to the relationships between the Management Directorate and the Components. However, the relationships appear to steady when the Management Directorate utilizes its oversight and assessment authorities as a means to engage and partner with the Components. In other words, the Management Directorate is more likely to successfully engage the Components when defining and influencing *what* should be accomplished, but struggles in these same areas when attempting to define and influence *how* it should be accomplished. This focus on "what" versus "how" was a regular theme that emerged during the interviews, especially when considering that the "how" needs to be applied across all 22 DHS Components. The individual Components' perceived distinct mission, cultural, and environmental factors are prohibitory to the Management Directorate influencing the "how."

However, the interviews yielded multiple examples demonstrating successful outcomes where the Management Directorate defined the "what" through a policy, standard or regulatory reporting requirement, and allowed the Component to focus on tailoring and implementing it to their mission and environment. In these cases, the Components owned the "how." This dynamic of "what" versus "how" is consistent with the "oversight-and-assess" versus "command-and-control" model the Management Directorate has adopted in engaging the Components.

This ability to successfully define and measure the "what" is predicated on incorporating the use of standards into governance. The adoption of standards, which can be implemented in the form of a defined lexicon, business rules, data dictionary, and/or key performance indicators, should be based on regulatory, industry (e.g., ISSO and ASTM), and federal (e.g., GAO) requirements. The utilization of these third-party requirements and standards that were not previously available has emerged as a mechanism the Management Directorate is now using to drive enterprise-level change.

Another practice that the Management Directorate has adopted to influence change involves that framing of third-party audits. Although the concept of audits is not new, the way the Management Directorate is engaging the auditors and partnering with

the Components in response to emerging audits is presenting opportunities to influence change and enhance relationships. This influence is initially being achieved through engaging and focusing the auditors to areas of strategic value to the Management Directorate and the Department as a whole. After these audits are initiated, the Management Directorate is using them as a mechanism to partner with the Components to assess and clarify existing policies and instructions. These tactics are necessary because the Management Directorate operates in an environment where, as Mr. Norquist noted, "few carrots and sticks exist to drive change." Meanwhile, partnering with the Components also contributes to creating an environment of "shared liability," which has numerous collateral benefits with the potential to enhance the Management Directorate's value to the Department and the individual Components. These benefits include creating a forum for discussion and clarification of the existing policies and instruction, vesting a shared interest of all parties to the audit's results, and developing camaraderie and alignment towards shared interests. These collateral benefits combined can influence future interactions and contribute towards creating an environment of trust that transcends the immediate audit.

Regarding the role of data, a central tenant of the Management Directorate authorities involves its oversight capabilities based on data. Until recently, however, there was no consistent, enterprise-wide standardized data from which this oversight and assessment could be conducted. One notable opportunity to begin collecting data was driven by and based on the various annual regulatory reporting requirements that the Department must adhere to and report against. In other words, because the Management Directorate lacked the ability to influence and enforce information policies and processes, it used federal requirements as a catalyst to centralize the corresponding data from each Component. This tactic laid the foundation for the initial efforts pertaining to the centralization and standardization of data. Because these requirements were defined and dictated by external or higher-levels of authority (such as OMB, GAO, Congress, or Executive Order), the DHS Components were more amenable and proactive towards aligning with them. Prior to this approach, the Components directly reported to these external stakeholders. Once the Management Directorate centralized the processes

associated with producing these regulatory, legislative, and statutory reports, the data required to produce these requirements became the *de facto* initial data dictionaries and baselines for the Management Directorate. The data from these reports were initially moved into rudimentary software tools and then repurposed to allow the Management Directorate to conduct its initial data-driven oversight and assessment capabilities.

These annual regulatory, statutory, and legislative reporting requirements form the basis of the Management Directorate's ability to capture consistent, interoperable data. In fact, data elements not associated with these types of external requirements are where the Management Directorate has experienced the most challenges in defining and extending its data dictionaries. These challenges, which have a direct bearing on the ability of the Management Directorate to conduct its core missions of oversight and assessment, originate from the governance maturity gaps described within this chapter.

Meanwhile, this chapter demonstrates that it has not been lack of effort, investment, or strategy that has impeded the Management Directorate's governance maturation. On the contrary, the establishment and formalization of multiple segment architectures—both for mission and business portfolios—demonstrates that there are proven methodologies and investments that, if reinforced through institutionalized governance, can mature and integrate the Department's management processes. Unfortunately, there are persistent governance gaps, which are a direct extension of the organizational and cultural dynamics that have historically undermined many of the Management Directorate's integration strategies. This is one of the primary reasons the Department remains on the GAO high-risk list for management integration and has continued to struggle with institutionalizing enterprise-wide integration initiatives, such as "One DHS" and "Unity of Effort."

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V. CHALLENGES WITH IMPLEMENTING ENTERPRISE-WIDE IT SOLUTIONS

A. INTRODUCTION

A key theme underpinning all of the interviews involves the challenges surrounding how the Management Directorate operated without data to substantiate or quantify decisions. Accordingly, the pursuit of standardized, enterprise-wide information was a consistent goal that transcended all USM administrations, although the strategies towards accomplishing this goal varied over time and were influenced by a variety of internal and external factors.

To illustrate the environment in which the Management Directorate operated, Ms. Duke noted that when she became Acting USM in June 2007 there "simply wasn't data available when decisions needed to be made" and that she relied mostly on her relationships with stakeholders and her intuition when it came to decision-making. To articulate her point about the lack of data, she recalled a specific scenario where she was receiving complaints from certain organizations about the length of time it was taking to fill billets in the hiring process. She explained that her approach to addressing the concerns was to conduct a full process analysis as a means to identify process stakeholders, integration touch-points, and chokepoints—with a goal of establishing metrics. Ultimately, she found that there were several stakeholder groups involved in the process, including investigations, badging, information technology (for both hardware and systems' accounts), and space management. She also determined that there was minimal integration across these groups. Additionally, there was no standard information system supporting this process and the individual stakeholder groups did not use similar lexicons. She said that despite a focus on developing metrics, it was virtually impossible to measure the performance of this "Time-to-Hire" process, due to the absence of not only data, but also standards and a consistent lexicon.

This chapter provides a chronology of the Management Directorate's approaches towards acquiring and implementing solutions to address the goal of data-driven decision-making and analysis. Two primary approaches were pursued, namely: A)

acquiring and modernizing enterprise-wide transactional business systems to be used by many, and in some cases all, Components, and B) consolidating and harvesting data through data warehousing and business intelligence tools. This chapter will explore both approaches and the associated projects to acquire and implement corresponding solutions. While on the surface these projects may look similar, they actually have nuanced, yet significant, differences.

B. THE INFLUENCE OF THE UFMS MODEL

The thought process as explained by those officials interviewed for this thesis who also were in the Management Directorate at its inception was that a "hard reset" was needed to deploy a model similar to the one used by the Department of Health and Human Services and the Department of Defense where a single, enterprise-wide unified financial management system (UFMS) exists. The 18 material weaknesses the Department inherited from the legacy agencies contributed to the Department being placed on GAO's high-risk list for a "Lack of Management Integration." This distinction, combined with the recognized atrophied nature of several of the major Components' legacy financial management systems, such as those within USCG, FEMA, and ICE, led to a mindset that a unified financial management system would be the catalyst for addressing many of these areas. As previously noted, some of the Management Directorate's early leaders, including Janet Hale, came from HHS and DOD where the UFMS model was established, which certainly had some bearing on their perceptions of the transformative nature of a UFMS.

A UFMS would ultimately introduce a platform for standardization because as a part of migrating onto the system, the Components would be required to convert to and adopt a single data dictionary, configuration, and set of business rules. Conversion to a UFMS would trigger standards in the Department's data while providing the Management Directorate access to the data—something it lacked then and in many cases continues to lack.

Based on this logic, the Management Directorate's primary strategy between 2004 and 2011 for adopting a UFMS model was the acquisition and implementation of an

integrated financial ERP system. There were three distinct attempts made towards accomplishing this goal, all of which were unsuccessful for various reasons and all of which will be explored in this chapter. In 2011, the Under Secretary of Management determined that the Department would no longer pursue a centralized management ERP system. However, the goal of consolidating and standardizing departmental data to use for reporting, analysis, and decision-making in a timely manner was still necessary and of critical importance.

The distinct attempts at establishing an ERP system as explained via the interviews and literature review included projects referred to as "eMerge^2," "TASC 1," and "TASC 2."

1. eMerge2

The project known as eMerge^2 (otherwise known as *Electronically Managing Enterprise Resources for Government Effectiveness and Efficiency*) "began as $229 million effort to build one enterprise resource management system across the department and later morphed to a series of planned financial-system migration projects."[99] The eMerge^2 project's goal was to implement an ERP solution, which is defined as an "automated system using COTS software consisting of multiple integrated functional modules that perform a variety of business-related tasks, such as payroll, general ledger accounting, and supply chain management."[100] This project started under Ms. Hale and thus was a focus of discussion during her interview. She summarized the failure of eMerge^2 as the "right concept, wrong execution," but took time to outline her perspectives on the myriad challenges that led to this project's ultimate undoing. It is worth noting that eMerge^2 was officially canceled in September 2006—six months after Ms. Hale left her USM position at DHS—when DHS CFO David Norquist told the House Government Reform Subcommittee on Government Management, Finance and

99 Dizard, "DHS scuttles Emerge2 program," http://gcn.com/Articles/2006/09/14/DHS-scuttles-Emerge2-program.aspx?Page=1.

100 Kay Daly and Nabajyoti Barkakati, *Financial Management System: DHS Faces Challenges to Successfully Consolidating Its Existing Disparate Systems* (GAO-10-76) (Washington, DC: U.S. Government Accountability Office, 2009), 1, http://www.gao.gov/products/GAO-10-76.

Accountability that, "With respect to our systems-modernization efforts, let me state that eMerge^2 is dead."[101]

The interview participants involved with the eMerge^2 project identified numerous interrelated factors impacting it's failure, but the general consensus was that the botches were simply a "failure of leadership" and "it was too big in scope, carried too many risks, and was based on the wrong (unclear) requirements." Further, it was recognized that there were issues associated with the Department's level of maturity and influence it had during these early years, while other problems stemmed from the vendor that had been awarded the implementation contract. The internal Management Directorate factors identified included, A) a lack of discipline in the acquisition and project management processes, B) differences of perception within the Management Directive between the original UFMS vision and the project's scope (i.e. "scope creep"), C) too many other conflicting priorities that detracted the Management Directorate's leadership team's attention away from this project.

Many of the internal factors Ms. Hale identified are consistent with her overall position that in the early days of the Department's creation there were simply too many competing priorities that commanded the attention of the leadership team and detracted attention from what was truly important. This opinion appears to reinforce Ms. Duke's position when she referenced the "Eisenhower Decision Matrix" and noted that the Management Directorate did not effectively prioritize activities that were "important, but not urgent." As it pertained to effective leadership, Ms. Hale asserted her opinion that much of the success of the UFMS at the Department of Health and Human Services was that it was personally lead by the Deputy Chief Financial Officer, while eMerge^2 was led by a program manager within a branch of the Office of the Chief Financial Officer—two ranks removed from the DCFO. Because there was not the right level of leadership engagement by the Management Directorate in this project, she said it resulted in a comparable lack of leadership engagement by other key stakeholders, most notably from the DHS Components. Ms. Hale noted that the Congressional demands to defend the

[101] Ibid.

Department's budget was enormous during these early years and "definitely played a role in detracting critical resources and focus from the eMerge^2 project."

Additional observations by the interview participants (who requested to not be attributed) regarding the eMerge^2 project was that the initial scope of the system was for it to be strictly focused on the business function of financial management and not subsidiary functions, such as procurement, asset management, and grants management. These subsidiary functions could be added in latter phases, once the initial financial modules were deployed, migrated onto, and stabilized with each of the DHS Components. However, at some point, which Ms. Hale could not fully recall, the project morphed and its initial scope expanded into the subsidiary functions, which greatly increased costs, stakeholders, schedule, and risks. Ms. Hale questioned whether eMerge^2 would have experienced different results if a phased approach had been utilized and the initial scope had remained structured around the core financial management function.

Other research participants involved in eMerge^2 shared different opinions of the failures associated with the project. For example, while David Norquist noted it was "too much, too soon, and with the wrong partner," he recognized different perspectives on the challenges accompanying the project. Mr. Norquist posited that instead of focusing on acquiring a new system, the Management Directorate would have been better served by focusing on the Department's people, processes, policies, and assurances. As noted in a prior section, the Department lacked complete and comprehensive policies, which Mr. Norquist recognized immediately upon arrival as he stepped into the role of DHS CFO in 2006. Additionally, he also recognized that there were inconsistent and disparate financial management processes, to include different and disjointed training curriculum, across the Components.

Furthermore, Mr. Norquist noted there was legacy financial management systems within specific Components that had obtained cleaned audit opinions and were developed on newer technologies. While eMerge^2 had concentrated on implementing a single system and migrating all Components—even those that had efficacious systems—onto it, Mr. Norquist recognized "consolidating onto fewer, best-of-breed systems was a better option for the Department, as compared to the efforts to get onto a single one." This shift

towards consolidating onto existing Component systems would become the basis of the "TASC 1" strategy. Mr. Norquist noted that this strategy allowed his energy to be focused on providing access to existing internal systems to those Components with the most immediate needs.

One of Mr. Norquist's initial foci was on building a standard training program, which all new hires to the DHS financial community would attend, irrespective of with which Component the billet was affiliated. It was important to him that financial analysts and managers received an introduction to the Department's approach to financial management as opposed to how it was viewed specifically by the individual Component where the individual would be employed. An enterprise-wide training program was one of the key initiatives towards beginning to standardize the function of financial management within the Department.

Other key initiatives Mr. Norquist targeted included mapping financial management processes against A-123 standards, establishing a Policy, Assurances, and Evaluations Division within the office of the CFO, developing an internal controls playbook, and developing a roadmap to address each of the 18 material weaknesses preventing the Department from getting a clean audit opinion. Mr. Norquist referred to these activities as, "establishing the fundamentals" and explained that none of them were necessarily contingent on an ERP system. It was this primary focus on developing the financial management fundamentals, combined with the aforementioned challenges associated with the eMerge^2 vendor, which contributed to Mr. Norquist's decision to formally cease the pursuit of an ERP system.

2. "TASC 1"

During the interviews with the research participants, there were regular references to the terms "TASC 1" and "TASC 2." The literature review had never differentiated the TASC projects in this manner and had simply referred to this project as TASC. TASC stands for *Transformation and Systems Consolidation*. Through the interviews, it became clear that there were two unique approaches to TASC and they were referred to as "TASC 1" and "TASC 2."

After Mr. Norquist chose to cancel the eMerge^2 project to focus on establishing the Management Directorate's financial management fundamentals, he initially did not see the need to focus on deploying an enterprise-wide financial management system as a mechanism to accomplish his goals. However, after making strides in the aforementioned areas, he realized that certain deficiencies would not be overcome without modernizing some of the Component's legacy systems and developing an enterprise-wide reporting capability as a means to consolidate and analyze information. The lack of this reporting capability relegated the Management Directorate to obtaining information through the use of data calls that were not only resource- and time-intensive, but also were self-reported with little means for verification. These data calls further required manual reconciliation and still lacked standardization and integration across the Components.

TASC 1 refers to the Management Directorate's strategy to first assess and identify the "best-in-class" systems that were currently in operation by the DHS Components, and then attempt to position those deemed as such to be "a center of excellence" for the other Components. Mr. Norquist and a few of the other research participants were significantly involved in the TASC 1 initiative. Many posited that if the Management Directorate could get all the Components consolidated and migrated onto a core set of solutions that had been evaluated as "best-in-class" it would greatly reduce many of the challenges previously experienced by the eMerge^2 project. This approach would also result in cost savings and economies of scale because it would allow the Department to avoid a large, time-intensive, expensive, and politically-sensitive acquisition, while simultaneously allowing the Department to focus its resources on modernizing just a handful of systems (while shedding numerous legacy systems). It is noteworthy that Mr. Norquist observed that the TASC 1 model looked very similar to a "Financial Systems Shared-Service" model, which will be discussed later in this thesis and is relevant to present day strategy.

There were, in fact, systems identified within specific Components that demonstrated the potential to support the TASC 1 objective of migrating onto the "best-in-class" systems. The systems that emerged as potential candidates included TSA's Oracle-based financial management system and CBP's SAP-based financial management

system**.** It was noted by Mr. Norquist that the selection of Oracle and SAP technologies was perceived by the Department as a favorable outcome, since it removed some of the acquisition risk of promoting one technology over another.

However, shortly after DHS issued a request for proposal for contract services to conduct the migration of five Components onto the two identified shared system baselines (Oracle or SAP), a protest was filed by a "financial services company, which was a potential offeror to DHS's 2007 request for proposal…with the U.S. Court of Federal Claims."[102] In March 2008, the Court of Federal Claims "enjoined DHS from proceeding with the November 2007 request for proposal until DHS conducts a 'competitive procurement', in accordance to the law."[103]

This would be the first of several protests—often filed by the same vendor who has a significant book of business established within one of the DHS Components – which over the years would undermine and derail the Management Directorate's strategies involving the modernization of the Department's systems. The role of the acquisition processes and the ability of a small concentration of vendors to be consistently disruptive of Departmental strategy was discussed by numerous participants during the interviews. And while this topic will be discussed later, the depth of frustration with the acquisition regulations and the ability of the vendors' to use these regulations disruptively was a common theme that many participants vented about, but requested not be included "on the record" in this thesis.

The result of this decision by the Court of Federal Claims was a point of contention for the Management Directorate for several reasons. One the primary reasons DHS lost this protest in court was due to the fact that the Department was unable to represent itself. In fact DHS, as is the case with other federal departments, is legally prohibited from representing itself in court cases pertaining to procurement protests and all legal representation is provided by the Department of Justice (DOJ). In the opinion of certain participants, DOJ failed to do their due diligence to adequately prepare for the

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[102] Daily and Barkakati, *Financial Management System: DHS Faces Challenges to Successfully Consolidating Its Existing Disparate Systems* (GAO-10-76)), 5.

[103] Ibid.

trial by focusing on the singular argument of legal standing. Once the court established that the plaintiff had legal standing, the DOJ was not prepared for the next series of arguments made by plaintiff. For example, a key complaint of the plaintiff was that DHS had not performed an analysis of alternatives. This was simply not the case. The Management Directorate had conducted and documented an exhaustive analysis of alternatives with contributions from both their finance and information technology stakeholders. However, DOJ was not prepared to represent this argument, which was a critical point in the court's opinion and contributed to the perception that there was a lack of preparation on DOJ's part.

Secondly, the fact that the Management Directorate felt they had brokered and established a responsible, relatively inexpensive strategy that leveraged "best-in-class" technologies already deployed and operationalized within major DHS Components, which was essentially undone by what was largely perceived as politics and ineffective government, was a point of great contention for many of the participants involved with this initiative. The inability to leverage existing systems that were already operational in DHS—thus viewed as more credible and mature—was perceived as a significant setback. For many, this appeared to be an appropriate, logical solution for DHS that was simply undone by factors that were perceived as outside of the Management Directorate's control and symptomatic of the challenges of conducting business in the federal government.

The legal jockeying between DHS and a handful of vendors involved with its financial systems modernization efforts started in January 2008 and is still ongoing as of writing of this thesis.

3. "TASC 2"

Once the TASC 1 strategy was derailed by the courts, the Management Directorate pivoted and refocused its efforts on acquiring an ERP system based on one that already existed and was operational inside the federal government. The logic was similar to TASC 1, but was tailored towards the acquisition of an entirely new system for DHS that would be based on replicating and mirroring an existing, operational ERP

system within the federal government proposed as "best-in-class." This effort resulted in a five-year, $450 million award in November 2010 for a systems implementation contract for an integrated Oracle COTS software system with additional, augmenting bolt-on COTS applications to address related functions, including property, procurement, facility, and project management.[104] The awarded system was based off the National Institutes of Health's financial ERP system.

However, this award was also protested. This time the two losing companies filed protests with the GAO, who ultimately upheld the protests. But the basis of the protests stemmed from changes OMB had recommended DHS adopt. Essentially, what transpired was that in "June 2010 OMB instructed all federal agencies to halt new procurements for financial systems worth more than $20 million, pending review and approval of the systems by OMB."[105] OMB provided DHS a waiver, but also gave instruction that, instead of implementing TASC across 20% of the Department in the first year, DHS should focus on a single large component that demonstrates a critical business need and poses marginal risk, which turned out to be FEMA.[106] With DHS agreeing to modify the scope and schedule according to OMB's recommendation, it received approval to proceed and an issue an award. While there were additional factors which led GAO to uphold the protests, this change to the TASC implementation schedule was the primary factor. The fact that the protests were upheld did not in-and-of-itself undo the TASC 2 program, but the end result was that the project would need to take on significant rework and absorb substantial schedule delays. Ms. Sherry recalled questioning if there was "enough political will" to continue to pursue an ERP for the Department and noted that many stakeholders across the Department had concerns with its "largeness and complexity."

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104 John S. Monroe, "CACI Nabs DHS Financial Services Deal," *Washington Technology*, November 20, 2010, http://washingtontechnology.com/articles/2010/11/20/dhs-tasc-financial-services-caci-award.aspx.

105 David Perera, "OMB recommendation led to TASC protest at DHS," *Fierce Government IT*, March 16, 2011, http://www.fiercegovernmentit.com/story/omb-recommendation-led-tasc-protest-dhs/2011-03-16.

106 Ibid.

By March 2011, DHS had essentially been pursuing an ERP solution for eight years—spending somewhere in the neighborhood of $80 million. During these eight years, minimal funding was made available to the Components to update, maintain, and modernize their legacy systems, due to the vision that all would ultimately migrate onto a single, enterprise-wide system. The political and social capital invested in the ERP strategy was significant. It is noteworthy—and will be further discussed later—that during these eight years federal guidance and legislation pertaining to IT systems changed substantially and played a role in the support DHS received for its pursuit of an ERP.

By this point, Mr. Norquist had left DHS and was no longer working for the federal government. During the interviews he and others expressed displeasure with OMB and GAO and their habits of issuing new federal governance rules that are ambiguous, open to interpretation, contradictory with other governance, and regularly do not align with existing federal regulations (e.g., acquisition regulations). Changing federal guidance, especially as associated with OMB and GAO, was described by one participant as "a poison pill for federal agencies."

Many of the participants raised frustrations specifically with OMB, labeling the guidance issued "unhelpful," "disconnected from reality," "lacking an integrated view across business lines," "contributing to confusion," and "conflicting." One participant noted that when the change between the Bush and Obama Administrations occurred, the leadership and philosophies within OMB did as well, which had significant, cascading effects on DHS. One consequential policy shift that came out of OMB as a result of the Administration change was a focus from agencies developing their own systems to agencies adopting "shared service providers," which is another term for "centers of excellence." Ironically, as Mr. Norquist noted, DHS had pursued an internal shared services model within its TASC 1 approach, but had been derailed by protests in the courts.

Mr. Borras, who had become the USM in April 2010, stated in his interview that he had substantial reservations about the TASC 2 project, which he had inherited when he came into office. He saw the TASC approach as being "too much, too risky, and too

pricey." The problems he observed concerned the lack of strategies as they pertained to risk management and funding. He also saw a lack of a funding commitment to the project from Congress, which gave him great pause because he said a lack of a dedicated stream of funding meant that each year the Department would be guessing how much would be allocated to the project with little certainty for planning purposes. Mr. Borras also noted that while the Department's appropriation levels had grown consistently since 2004, there were indicators in 2011 that this trend would stop—which in fact it did. "I did not want to be in a position where I was arguing on the Hill to pull money away from the Department's mission for a disruptive and pricey solution that I was not convinced the organization had the wherewithal or support to implement," he said. However, he also noted that he did not want to disrupt the TASC project, both out of respect to the chiefs who pre-dated his administration and had invested significantly into the ERP approach, and also because of the need to maintain continuity and credibility for the Management Directorate. When GAO upheld the protests, he recognized it was time for the Management Directorate to pursue other strategies, and in May 2011 he decided that DHS would no longer pursue a single, consolidated ERP solution.

C. POST ERP STRATEGY – TWO PATHS FORWARD

1. "Federal Shared Service Provider" Model

Upon ceasing its pursuit of an integrated, department-wide ERP system to address the business functions of financial, procurement, and asset management functions, "DHS announced it would be exploring other options, including cloud-based systems, with a focus on component-by-component development and non-integrated solutions."[107] As indicated previously, the issuance of federal guidelines in late 2010 and early 2011 significantly impacted how federal agencies could proceed with the modernization of IT systems. These guidelines included the release of the United States Chief Information Officer's *25 Point Implementation Plan to Reform Federal Information Technology Management* in December 2010 and *Federal Cloud Computing Strategy* in February

[107] Lipowicz, "DHS Cancels $450 M Financial System Modernization," May 18, 2011.

2011'.[108][109] Because of these new guidelines, DHS recognized that "OMB requires cloud-based and service provider solutions be evaluated first and used whenever a secure, reliable, cost-effective option exists. With advances in IT security, DHS security architecture now expressly supports external services as an extension of the trusted internal environment. Thus, a cloud-based or shared services solution could meet the department's needs."[110]

One additional guideline released in March 2013 by OMB was Memo 13-08 "Improving Financial Systems Through Shared Services."[111] This memo explicitly directed all executive agencies "to use, with limited exceptions, a shared service solution for future modernizations of core accounting or mixed systems."[112] This memo recognized that all agencies would give consideration to the capabilities and gaps of the recognized cloud-based Federal Shared Service Providers (FSSPs) as the first source for satisfying financial and mixed-system requirements.

However, similar to other changes in guidelines, one participant described how the language of M-13-08 has changed since its initial version, noting specifically that the language within it appeared to be diluted with subsequent releases. The participant, who requested not to be named, noted that "M-1308 started out with the language of 'shall [utilize a FSSP]', which was then changed to 'shall consider [utilizing an FSSP]', and then again 'to conduct a business assessment of a FSSP.'" This participant went on to describe how these guidelines and their changing language have the potential to undermine a Department's ability to develop and execute a strategy. It was observed that the language of "shall" has much stronger implications than "shall consider," which the participant emphasized essentially has "no teeth to drive any action."

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108 Kundra, *25 Point Implementation Plan.*

109 Kundra, *"Federal Cloud Computing Strategy.*

110 Lipowicz, "DHS Cancels $450 M Financial System Modernization," May 18, 2011.

111 U.S. Dept. Of Treasury, Bureau of Fiscal Service, *Facilitating Agencies Transition to Federal Shared Service Providers*, http://www.fiscal.treasury.gov/fsservices/gov/fit/fit_fssp.htm.

112 Executive Office of the President, Office of Management and Budget, Memorandum for the Heads of Executive Departments and Agencies, "Improving Financial Systems Through Shared Services," Memorandum 13–08, March 25, 2013, https://www``.whitehouse.gov/sites/default/files/omb/memoranda/2013/m-13-08.pdf

Furthermore, this individual, as well as others, described how federal guidelines and legislation have little ramifications inside the DHS—hence the "no teeth" statement. The context of this statement is that since the Management Directorate does not have centralized budget authority, and, similar to the challenges described in the aforementioned section "Lack of Institutional Governance," there are limited mechanisms to drive consistent adoption of regulations and legislations within DHS. When discussing the recently passed "DHS IT Duplication Reduction Act" (H.R. 1626, Public Law No: 114–43), which became law August 6, 2015, Keith Trippie noted that "the law is just a piece of paper—what will be interesting is how DHS will choose to implement the law."[113] Mr. Trippie went on to describe how it has not been the lack of regulations and laws that impeded progression by DHS towards standardized systems and data, but instead the ability to implement and enforce the existing ones. However, Mr. Trippie did assert his opinion that the current CIO was gaining traction with leadership to gain support on key IT strategic initiatives.

The objectives contained within the U.S. CIO's aforementioned guidelines, coupled with OMB Memo 13-08, was described as essentially the foundation for the Management Directorate's post-ERP strategy. As opposed to acquiring a single, collectively agreed-upon system, the DHS Components were given the independence to conditionally pursue, implement, and configure existing systems to meet their unique requirements and processes, albeit within the constraints outlined by these federal guidelines. The Management Directorate established an USM-chartered Financial Systems Modernization Executive Steering Committee in FY 13 as a means to "modernize financial management systems and expand business intelligence to improve the ability to quickly provide Department-level information, increase efficiency, and strengthen financial systems in a cost-effective manner."[114] This charter is positioned as an oversight and guidance governance document and its mission is described as "to provide effective oversight and guidance to all Components undergoing financial systems

[113] Keith Trippie (former DHS Executive Director of Enterprise Services for the CIO), in discussion with the author, August 21, 2015.

[114] U.S. Department of Homeland Security, *Executive Steering Committee Charter for Financial Systems Modernization*, Version 1.5, Washington, DC: November 15, 2012.

modernization efforts." Its first listed authority is that it shall "provide strategy and Department-level direction on Component financial system modernization efforts."[115]

Currently, under the governance of the Financial Systems Modernization ESC, each DHS Component is currently in the process of evaluating and/or pursuing the individual FSSPs, of which OMB has certified seven. With each Component conducting this evaluation independent of the Management Directorate and the other Components, there is likely potential that Components may select different FSSPs. In other words, likelihood exists that DHS Components will select different FSSPs and various FSSPs will be responsible for one or multiple Components' integrated accounting, acquisition, and asset management systems.

The adoption of a FSSP system requires a DHS Component to adopt an existing, operational system to include its current application and technology suite and related core configurations. This factor, without a complimentary approach, has cascading effects on the Management Directorate's ability to accomplish its enterprise analysis, reporting, and decision-making objectives. First, it will impede DHS from achieving a single, standardized, Department-wide configuration. With each FSSP having its own unique configuration, the Department will need to consider how it will consolidate and normalize data from multiple FSSPs, giving consideration to each FSSP's unique configuration and business rules. Second, with the potential for multiple FSSPs being adopted across the Department, DHS will need to invest in a mechanism for systematically capturing and consolidating data from each represented FSSP. Lastly, Department-level policies, such as the CFO's Accounting Classification Structure (ACS), were intended to be implemented within the ERP solution.[116] The ACS is the mechanism for standardizing the accounting line's segment and is critical to tracking funding across the Department's programs, projects, and activities in a consistent and comprehensive manner. Without an ERP, it is yet to be determined how the implementation and adoption

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[115] Ibid.

[116] *Creating One DHS: Standardizing DHS Financial Management: Hearing before the Committee on Homeland Security, Subcommittee on Management, Investigations, and Oversight, House of Representatives*, 111th Cong., 1 (2009) http://component.gpo.gov/fdsys/pkg/CHRG-111hhrg57850/html/CHRG-111hhrg57850.htm.

of a consistent ACS, along with other critical standardization data attributes, will be achieved.

As of publication of this thesis, one headquarters Component (DNDO) was on the precipice of migrating onto a FSSP with a rudimentary set of capabilities. It is too early to determine if this strategy—each Component conducting their own analysis and pursuing the FSSPs independently, but under the governance of the FSM ESC—will ultimately be successful. The first Operational Component, TSA, is not scheduled to migrate onto an FSSP until late FY 16/early FY 17 and many Components are still in the discovery phase where they are evaluating the individual FSSPs to determine which best align to their requirements, processes, and schedule.

It is worth noting that procurement protests continue to haunt the Department. Early on in the financial systems modernization life, a small DHS headquarters Component attempted to migrate off its internal DHS financial system to another Component's financial system, which was at that time being positioned as an internal shared systems offering. As the same interview participant who did not want to be named explained, this transition across internal DHS solutions was protested and, despite the transitioning being described as "all but complete with just the switch to be flipped, the Component was instructed to cease proceeding and revert back to its legacy solution until the matter could be resolved in federal court." The matter is still being decided within the federal court system. This lawsuit and the environment surrounding DHS was discussed by many participants, who bemoaned the litigious nature influencing the Department and its subsequent ability to siphon time, resources, and momentum away from moving strategic initiatives forward. One participant described the Department as "stricken by legal paralysis" as a result of vendors' ability to protest any acquisition, emphasizing how these protests have undermined the Management's Directive ability to successfully modernize its systems.

2. Information Consolidation and Data Warehousing

Once it was decided that a decentralized transactional systems modernization strategy would be adopted, some of the Management Directorate's lines of business

leaders determined it required a parallel strategy for consolidating and standardizing information associated to their business functions. In other words, there was recognition that the decentralized nature of the future-state transactional systems, despite not knowing how these systems would evolve, would require a data consolidation and integration strategy to meets the goals of consolidated analysis, reporting, and decision-making. This change most notably impacted the financial management, asset management, and acquisition business functions and their oversight lines of business, as they were the ones most affected by this strategy shift. To adapt to the decentralized transactional systems footprint, the Management Directorate turned to a data warehousing and business intelligence strategy as a means to accomplish these goals.[117]

Many of the interviewed participants spoke at length about the concept of data warehousing and business intelligence as it pertains to the Management Directorate. Specifically, Mr. Myers said that as soon as the TASC award was cancelled he determined, "there will never be a single enterprise-wide system with DHS. There are simply too many barriers—legal, political, and cultural. Yet, this does not remove the responsibility for each [Management] Chief from conducting oversight and developing tools for collecting data to do so." Mr. Myers went on to describe how he carved out a significant portion of his office's base budget, starting in FY 11 and FY 12, to develop a data warehousing tool specifically for capturing the data for the lines of business for which his office, the Office of the Chief Readiness Support Officer, has oversight. Mr. Myers further pointed out, "Information consolidation is imperative for conducting oversight and was subsequently identified as a primary mitigation solution for responding to current and future audit findings." He went on to describe how his approach did not start with developing an IT system, but instead originated with establishing a data dictionary that was based against requirements described in existing policy, instructions, regulatory, and legislative artifacts. Mr. Myers described one of the key lessons learned from the early phases of his data warehousing project. "We attempted to try to get too much data too soon and we failed at getting any reliable or consistent data," he said,

[117] U.S. Department of Homeland Security, *Integrating Line of Business Dashboards, Internal USM Charter*, Washington, DC: May 2, 2012.

recalling that each Component had their own transactional real property and personal property system, each with their own distinct configuration and data dictionary. Mr. Myers went on to describe how his project had to be reset and the data warehouse's data dictionary had to be stripped down to reflect fundamental data elements that either had a clear justification founded in a regulatory or legislative report, or were consistently identified and defined in each Component's existing transactional system. He went on to say that "with some minimal exceptions, a majority of data elements not founded by an external report or legislation were so inconsistent, unstandardized, and inaccurate it undermined the entirety of the entire effort." He then explained that once the data dictionary was re-baselined against elements that had external requirements—meaning they had third-party (e.g., OMB) definitions and business rules typically based on regulatory reporting requirements—only then could he begin to collect consistent, reliable data in a standardized manner from each of the Components. Mr. Myers noted that during this timeframe he was pushing his office's policy directors to revisit their policies and instructions to ensure data attributes, definitions, and standards were being positioned in these documents. He noted that while he would never benefit from these efforts during his tenure, having the management instructions define the data standards, definitions and business rules would establish a baseline to frame the maturation of future transactional systems five to 10 years down the road.

In FY 11, pursuant to direction given by the USM, the DHS CIO established a cloud-based Business Intelligence as a Service (BIaaS) offering. The BIaaS platform offering was a culmination of COTS applications that facilitated the integration and consolidation of data from the Components into the Chief's individual data marts. This platform should not be confused with a transactional system, as its primary purpose is to consolidate and aggregate data from the Components' transactional business systems as defined within data marts designed and developed individually by the Chiefs. USM Borras viewed the BIaaS platform as a means to accomplish his strategic objectives and directed his Chiefs to utilize this service as a means to consolidate the data associated to the lines of business for which they have oversight. As some of the lines of business were pursuing other technologies, the decision to force all lines of business onto a centrally

operated platform was noted as a crucial decision by Mr. Borras, he said in his interview. He noted that while it was premature, he recognized that a single centralized platform would not only result in costs savings and efficiencies for the Management Directorate, but would also ultimately be the basis for cross-line of business integration in the future. Mr. Borras was emphatic that this decision—to force each of his lines of business to develop a business intelligence capability on a single, centrally operated platform by the DHS CIO—was one of the most critical of his tenure as USM.

In March 2012, Mr. Borras gave testimony before the U.S. House of Representatives, Committee on Homeland Security-Subcommittee on Oversight, Investigations, and Management, which he concluded with the following statements: "All Management Directorate line-of-business offices are developing information standards for their respective functions and are using the Department's business intelligence service to develop dashboards from both internal and external stakeholders. It is expected that over the next 12 months, we will standardize data sets and initiate pilots on enterprise business intelligence capability. My goal is for the decision support capability to serve as the primary source for DHS dashboards where performance, program and portfolio management, financial, acquisition, human capital, asset management, enterprise architecture, cyber, and other DHS data sets are obtained from the DHS systems of record. Those dashboards will be integrated to provide a better view into the Department's mission performance and identify efficiency opportunities."[118]

The following models represented in Figures 3 and 4 demonstrate different conceptualizations on how data will flow from the decentralized transactional systems into the data warehousing tools centrally hosted and operated by the DHS CIO. Figure 3 is the author's interpretation of the relationship between a single LOB's data mart and the transactional business systems that shall source it Component data. Figure 4 depicts a

118 *Building One DHS: Why Can't Management Information Be Integrated: Before the Committee of Homeland Security, Subcommittee on Oversight, Investigations, and Management, House of Representatives,* 112th Cong. (2012). (testimony of Honorable Rafael Borras, DHS Under Secretary of Management).

data flow model between the Components transactional systems and the Management Directorate's line of business data mart.[119]

Figure 3. Relationship between LOB Data Mart and Transactional Source System

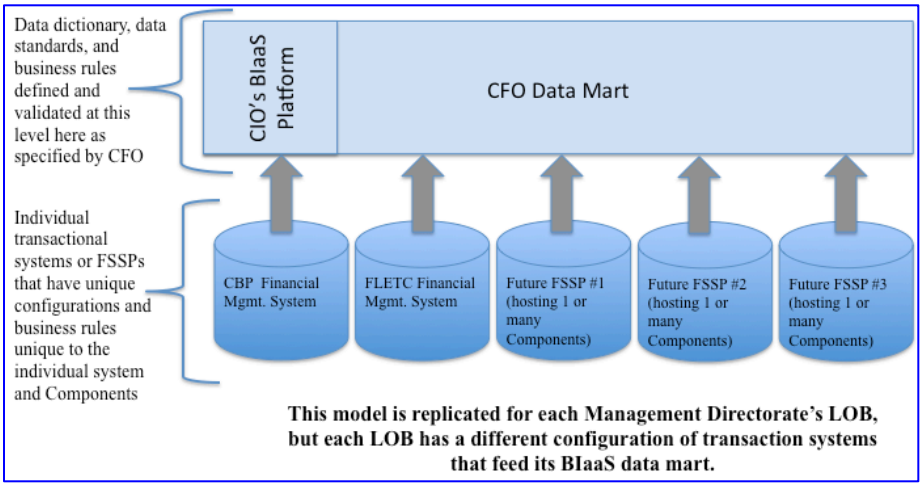
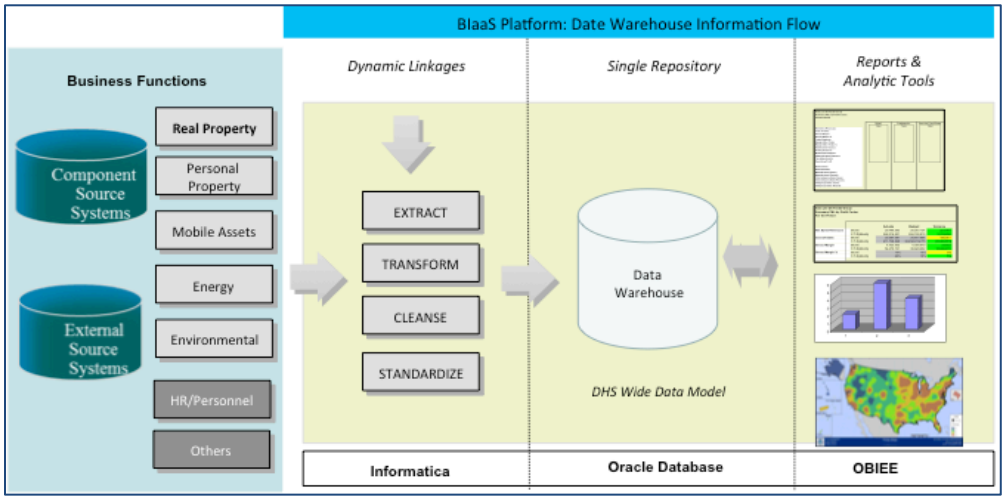


Figure 4. Data Warehouse Information Flow



This model is one visual depiction of the flow of data from Component source systems into the Management Directorate's Business Intelligence tools. Source: U.S. Department of Homeland Security, Management Directorate, *Asset Management Systems Executive Steering Committee*, Washington, DC: August 20, 2014.

119 U.S. Department of Homeland Security, Management Directorate, *Asset Management Systems Executive Steering Committee*, Washington, DC: August 20, 2014.

Based on their own desire to establish a tool to collect data from which they could conduct oversight, coupled by the direction of USM Borras to pursue business intelligence, Mr. Trippie noted that the Chiefs, out of business necessity, proceeded with establishing their own respective projects, plans, and governance as a means of designing, developing, and populating their data marts within the BIaaS platform. Mr. Trippie said that one of the challenges he recognized from the early stages of this initiative was that while it was a priority of the USM, the initiative it was not centrally funded—meaning each line of business had independently resourced and funded their own data mart from their base budget. The result was that this initiative was not prioritized equally by each Management Directorate's line of business in terms of resources and funding. Mr. Trippie noted that he operated the BIaaS out of his investment funding, vice a centralized fund, because he recognized that this strategy was the right model for maturing oversight of the Department's business functions and was willing to fund the platform to accomplish this objective. As Mr. Trippie was both the executive director of the office within the CIO hosting the BIaaS platform and co-chaired the USM's *Business Intelligence Dashboard* Executive Steering Committee, this observation correlates to the earlier core theme that while the department had made great progress in the short time DHS had been in existence, challenges still remain; particularly around competing priorities across the Management's Directorate's missions and the approach to centrally organizing around select initiatives. Mr. Trippie, whose experience in DHS dated back to 2004, stated, "while this data consolidation and integration model is not the most effective cost, resource, or technology strategy as it pertains to maturing the Department's management functions—a central model to maximize efficiencies and prioritization across the Directorate would have been preferred—given the limited progress toward an Enterprise Financial service and the numerous cultural and organizational factors, it is the right model for DHS at this time." Mr. Trippie recalled observing progress from across multiple lines of business in the early timeframe of the ESC. He was proud of the achievements made in a short amount of time and felt the approach was yielding positive results impacting the Planning, Programming, Budgeting and Execution functions of the department.

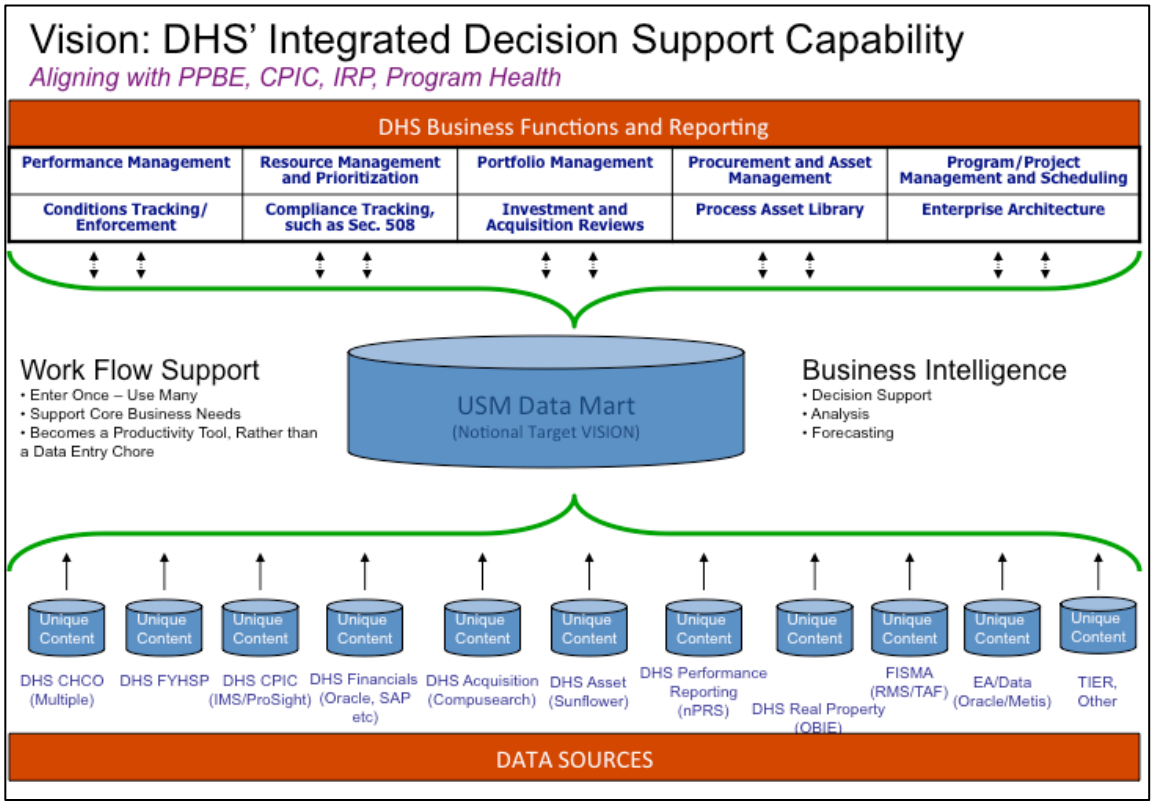
At the time of this thesis, the use of the BIaaS platform as a means to consolidate and normalize data associated with the individual DHS management functions is still a work-in-progress. It appears to be a viable method for conducting department-wide analysis, reporting, and decision-making for each of the Management Directorate's lines of business. However, one significant gap was identified with this strategy. Because each of the Management Directorate's lines of business approached the design and development of their data marts individually to meet their unique respective requirements, these applications were not designed with a focus on cross-line of business data interoperability. This has resulted in applications that can report data myopically within a specific function, but—with minor exceptions—cannot relate nor report across the management business functions. Mr. Myers observed that it was known that there is similar, and at times redundant, data within the individual applications that were not aligned or reflective within other applications, which called into question the accuracy and reliability of the data in its totality. These gaps could handicap the capabilities of the system to conduct comprehensive, management-level analysis, reporting, and decision-making. One specific example provided by Mr. Myers involved an attempt in FY 14 by members of the OCFO and OCRSO to reconcile the Plant, Property, and Equipment sub ledger for a single Headquarters Component to determine if the values from the OCFO data mart married to the comparable data in the OCRSO's data mart. The analysis showed significant discrepancies and that the data could not be successfully reconciled, which demonstrates that, while the data marts themselves may be successful in consolidating data for the respective business function, there are challenges associated to data interoperability and integration which span multiple business functions.

To ensure that there were efforts to not only overcome these functional silos, but also integrate data and drive data interoperability, Mr. Borras chartered the Business Intelligence Dashboard Executive Steering Committee. In addition to these activities, this committee and its associated working groups were tasked with developing an integration layer across these applications.[120] In this charter, the USM recognizes that the BIaaS

[120] U.S. Department of Homeland Security, *Under Secretary for Management's Dashboard/Business Intelligence, Executive Steering Committee Charter*, Washington, DC: April 13, 2012.

applications would not meet their full potential without a mechanism to join and combine interrelated data from across all the Directorate's lines of business as a means to support cross-functional analysis and reporting. The initial vision and business model for this integration layer is depicted in the Figure 5.

Figure 5. DHS Integration Decision Support Capability: Initial Conceptual Vision



The original conceptual visualization of what would evolve into the Management Cube. This model was provided to the USM and the Management Directorate's Chiefs in January 2012. Source: U.S. Department of Homeland Security, Management Directorate. *USM Dashboard: Providing Line of Sight across Planning, Programming, Budgeting and Execution*, Washington, DC: January 2012.

D. FINDINGS AND ANALYSIS

The Management Directorate has made several attempts to mature and transform its ability to centralize, normalize, and analyze data as a means to enable and inform business decisions. The early attempts at this included the pursuit of centrally hosted and

operated integrated financial ERP systems. The acquisition and implementation of a Department-wide ERP system posed numerous challenges to the Management Directorate. While some of these challenges were peripheral and outside of its control, such as changing federal guidelines and continual acquisition protests from vendors, there were numerous organizational conditions that made the successful adoption of an ERP system within DHS highly unlikely.

One of the primary factors prohibiting the transition of DHS to an ERP was the breadth, disparity, and institutionalized nature of the legacy systems operated by the DHS Components. These systems pre-date the Department's existence and are tailored to and embedded in the processes of the individual DHS Components. As William Ulrich tell us in his book *Legacy Systems: Transformation Strategies*, "…Because legacy applications specify access points to legacy data along with the business logic for processing that data, they cannot be eliminated or easily replaced. Most legacy systems do not integrate well with other legacy systems or with new systems because each system tends to access and process data in its own unique way."[121] Further, Mr. Ulrich explains, "Legacy data tends to have the many of the following characteristics: A) data is defined and stored redundantly across multiple stovepipe business units and applications, B) the same or similar data is defined inconsistently across multiple systems, C) the same data terminology may be used to define different data across multiple applications and business units, D) the integrity of the data may be poor and contain information it should not contain, E) data may not be easily accessible by modern systems or through user-based inquiries, and F) data cannot be readily shared across systems, business units, and organizational boundaries."[122] Thus, the simple volume of legacy management systems—tied to legacy processes—that existed when the Department was created was itself an impediment for any systems modernization initiative.

Of equal significance is that the successful adoption of an ERP system is predicated upon certain organizational conditions being in place. These organizational

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[121] William Ulrich, *Legacy Systems: Transformation Strategies* (Upper Saddle River, NJ: Prentice Hall, 2002), 22.

[122] Ibid., 23.

conditions are not optional if an ERP is to be implemented. An ERP system requires a single core configuration, which is founded upon standardized lexicons, business rules, and integrated processes. As discussed in the prior chapter, the Management Directorate did not have these foundation principles established to allow for the definition, creation, and standardization of this core configuration. Similarly, it did not have the influence or authority to dictate the process-level changes necessary to garner compromise and define a single set of system-based processes within the ERP solution. Many of the research participants recognized that the early focus on systems was premature. The reference to "premature," which can be interpreted in many ways, appears to apply to this lack of foundational, consistent management principles, which significantly impeded the Management Directorate's pursuit of a management ERP system.

Meanwhile, these systems modernization initiatives were too large, too complex, involved too many stakeholders, and carried too high of a price tag, which therefore drew the attention of numerous oversight bodies. These ERP systems each carried multi-hundred million-dollar price tags and thus were highly scrutinized by Congress, GAO, and incumbent systems vendors who were vested in the legacy systems. Irrespective of the Department's maturity in its acquisition, program management, and change management proficiencies, each of which were identified as questionable and lacking maturity, projects of this size, scope, and stakeholder volume are highly complex and carry significant risk.

The early organizational culture was commonly described as "territorial" with respect to the relationships between the Management Directorate and the DHS Components and among the DHS Components themselves. The Management Directorate was also at this time an unknown and unproven entity and, as discussed in Chapters 2 and 3, the Components had avoided partnering with or dedicating resources to the Management Directorate. Given that these systems' modernization initiatives required each of the Components to compromise and relinquish authority/control to the Management Directorate, this "territorial" environment was also an organizational impediment that detracted from the Department's modernization initiatives.

It is also noteworthy that these aforementioned factors have almost nothing to do with the actual information technologies or software applications that the Department pursued during its various attempts to modernize its systems. In fact, the technologies and software applications selected and acquired were nearly identical in each attempt. The primary differences between iterations had to do with nuanced variations in the hosting, migration, integration, and/or acquisition plans and schedules. Thus, the failings of the initiatives actually had little to do with the technologies or software being acquired and implemented.

Along those lines, the solutions being offered by the certified federal shared service providers are primarily constructed of the same software applications that the Department had attempted to procure in its centralized modernization attempts. The primary differences between the DHS centralized modernization model and the FSSP model are as follows: A) the FSSP system is hosted and operated externally to DHS, B) the core configuration and software baseline is already established and operational and in use by other federal agencies, and C) the individual DHS Components are assessing their distinct requirements against the recognized FSSP to select the provider that can best accommodate their schedule and requirements, as opposed to the Department's collective requirements being applied and compromised against a single solution. These differences, with specific emphasis on the ability of the Components to individually assess and select a solution that meets their individual needs, may ultimately prove this model viable.[123] It is too soon to determine if the FSSP model will be successful and if it can be executed to comprehensively satisfy the Department's management system's modernization strategy. And while there are legitimate concerns about the unproven nature of the FSSPs and their ability to be matured, scaled, and tailored, this model is much more conducive to the Department's organizational and cultural dynamics described in the earlier chapters.

Given that the Department will have multiple, disparate, and incongruent transactional management information systems, a strategy to consolidate, integrate and

[123] There is an ongoing court case that will be critical in determining if the FSSP model as constructed aligns with the current acquisition and open competition regulations. The case is Savantage Financial Services Inc. v. U.S., case number 14–307C, in the U.S. Court of Federal Claims.

standardize the Department's management data from across these systems is required. The approach to this strategy has been for each line of business within the Management Directorate to implement a data consolidation methodology underpinned with data warehousing and business intelligence tools. This model is founded upon the Management Directorate establishing information standards and collecting the corresponding data from each Component. From an organizational standpoint, this model aligns with the Directorate's oversight and assessment authorities and avoids the process/ organizational-level conditions associated with implementing transactional management systems.

Since this model is more suited to the Management Directorate's authorities, and because it has been given USM-level sponsorship, it is demonstrating success as applied to the individual lines of business. There are multiple examples in various lines of business where data is being consistently consolidated and utilized to better inform decisions. However, this model is predicated on specific cross-management integration functions being identified and managed. Not surprisingly, these functional integration gaps correlate to specific areas an ERP system would have addressed – namely, a standard integrated configuration in the form of standardized business rules and data dictionary. Because the data warehousing solutions are being implemented by the individual lines of business, cross-functional information and shared meta-data had not been given consideration or embedded in the initial designs.

For the Management Directorate to deploy a tool that can successfully consolidate and integrate data consistently from each LOB, there needs a mechanism to identify who owns the cross-functional information gaps. These gaps are better described as functional areas that benefit the Management Directorate or Department as a whole, but does not necessarily align with or benefit one of the individual lines of business. These gaps will be further discussed in the subsequent chapter.

In summary, while significant funds, resources, and efforts have been made to modernize the Department's management information systems, this goal has not been achieved. The data suggests that the centralized ERP model was not conducive with the organization conditions and authorities of the Management Directorate. The FSSP model

is a hybrid-ERP confederated model and seems to be better aligned with the organizational dynamics and cultures of the Department. However, while accomplishing certain goals like modernizing antiquated legacy systems and introducing core data configurations (e.g., Common Accounting Structure), this model will not accomplish the goal of centralizing Departmental management data. Furthermore, this model is in its infancy and has yet to be consistently proven within the federal government. Given this evolution within the transactional systems model, the Department requires an information consolidation and integration strategy, which has been addressed through implementing data warehouses and business intelligence tools along the boundaries of the Management Directorate's lines of business. This approach aligns with the Management Directorate's authorities and mission to conduct oversight and perform assessments.

VI. MATURING AND POSITIONING BUSINESS INFORMATION WITHIN DHS

A. INTRODUCTION

The last chapter presented the chronology of systems' strategies and approaches the Management Directorate used to meet its goal of consolidating data to adopt data-driven decision-making. It also explored how each approach aligned with interrelated organizational and cultural dynamics of the Department. This chapter explores the implications of the decentralized transactional systems model and discusses what steps are necessary to maintain coordination with it with respect to achieving the overarching goals. It will discuss other interrelated investments and success factors associated with achieving the goal of data-driven decision-making. Special attention will be given to the organizational considerations associated with positioning and recognizing information within the context of known political and organizational impediments.

The interviews explored the most current initiative to consolidate and integrate the Management Directorate's line of business data into a single data warehouse referred to as the Management Cube, which Mr. Borras denoted as the "one management Bible." The Management Cube builds upon and is an extension of the data warehousing and business intelligence strategy discussed in the prior chapter.

B. EVOLUTION OF THE MANAGEMENT CUBE

The Management Directorate is essentially pursuing a two-pronged approach as a means to mature its business information systems. As described in the previous chapter, the first prong is facilitating the Components transition from self-operated systems onto existing "OMB certified" federal financial shared service solutions, which adheres to OMB memo 13–08. It is worth recognizing that OMB, through its delegated oversight to the Department of Treasury, has provided the ability to allow agencies to obtain a waiver to remain on their self-operated system. Certain DHS Components, most notably FLETC, have obtained this waiver and will remain on their existing, integrated COTS-based

financial management system.[124] The second prong is consolidating data into a business intelligence platform that is operated by the DHS CIO and consists of individual data marts for each line of business within the Management Directorate. Each line of business is responsible for funding, managing, and developing their individual data marts in accordance with the business functions for which they have oversight. As each line of business is developing their data mart independently of the other lines of business, an integration layer was required to allow cross-management data to be collected and blended from the individual data marts. This integration layer, or "Management Cube," is in the process of being developed.

The concept of the Management Cube was introduced and initiated by USM Borras in 2012. As such, he spoke about it at length during his interview. Mr. Borras explained in detail that the model of the Management Cube was not new for him and was actually the third time in his government career he used a data warehousing and business intelligence model to consolidate diverse, disparate data sets from across a confederated enterprise. He went on to describe how oftentimes in his career he found himself leading organizations with myriad, disconnected systems and processes with limited visibility into the performance of the functions for which he had oversight. One example he used to illustrate this was his role as Deputy City Manager of the city of Hartford, Conn., where he had oversight of numerous city services, including law enforcement, fire and rescue, emergency medical services, and waste management. Recognizing the significant increase in terms of time, resources, funding, and change management—not to mention the political capital—needed to integrate and modernize the city's vast disparate systems and processes, Mr. Borras said he positioned data warehousing as his primary integration strategy.

Seeing a similar disarray of systems and processes within DHS when he became the USM, coupled with the political and acquisition challenges associated with TASC, Mr. Borras indicated that he recognized early in his tenure that a similar data consolidation strategy via a centralized data warehousing and business intelligence model

[124] Their COTS-based system is Momentum and part of their waiver was transitioning their solution into a DHS data center.

was better suited for the Management Directorate. He also recognized he did not see how the Management Directorate could execute its duties associated with conducting independent, department-wide oversight and informing its decision-making authorities without this form of data. However, Mr. Borras noted that before he could fully transition towards this model, he needed to demonstrate how it could be executed and applied within the Management Directorate through a proof of concept. To accomplish this, he described how he had the Office of the Program Assessment and Risk Management develop a system, referred to as the *Decision Support Tool* (DST), to consolidate department-wide program management information and metrics for all major acquisition programs across the Department. With minimal investment and coupled with the innocuous nature of the acquisition process for this system, it was implemented relatively seamlessly, quickly, and inexpensively and was able to successfully produce the targeted information. However, the quality of the information was of significant concern by many across the Department.

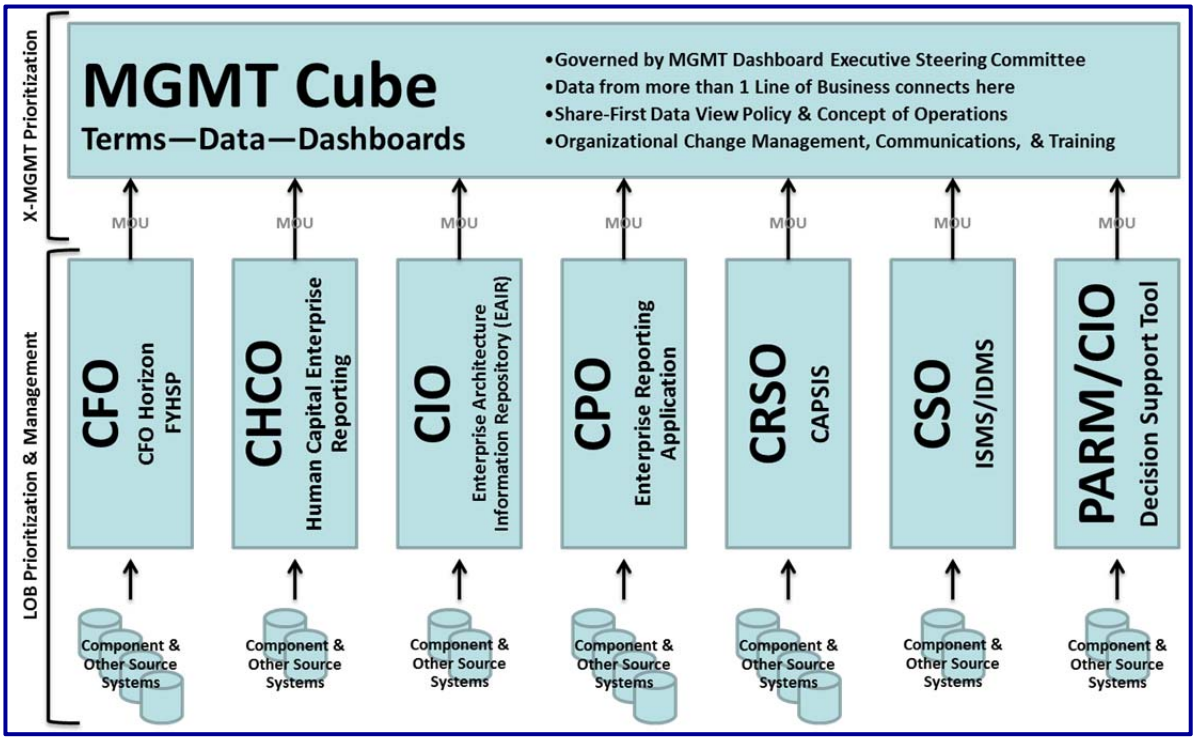
With this strategy still taking root, in May 2012 Mr. Borras distributed an internal memorandum to all his Chiefs stating, "One of the top priorities during my tenure has been to mature the decision-making process by providing timely, reliable, and accurate information to enhance decision making and inform external stakeholders. The Management Directorate lines-of-business (LOB) have been making noteworthy progress in their individual areas and we must continue to ensure we have data integration, consistency, and consolidation across the organization and the LOBs, particularly in our business intelligence dashboard reporting efforts."[125] The memorandum included the charter to the newly established Business Intelligence Dashboard Executive Steering Committee, which directed each line of business to designate a senior-level representative to serve on the ESC. The memorandum also directed all lines of business to not only invest in this strategy accordingly, but to also transition all their investments onto a single

[125] U.S. Department of Homeland Security, *Integrating Line of Business Dashboards Internal USM Charter*, Washington, DC: May 2, 2012.

technology platform hosted by the DHS CIO within the Enterprise Systems Development Office (ESDO).[126]

Figures 6 and 7 are two variations of conceptual models depicting the relationship and flow of information between the line of business data marts and the Management Cube. Both these models have been utilized in prior briefings to the Management Directorate's leadership team.

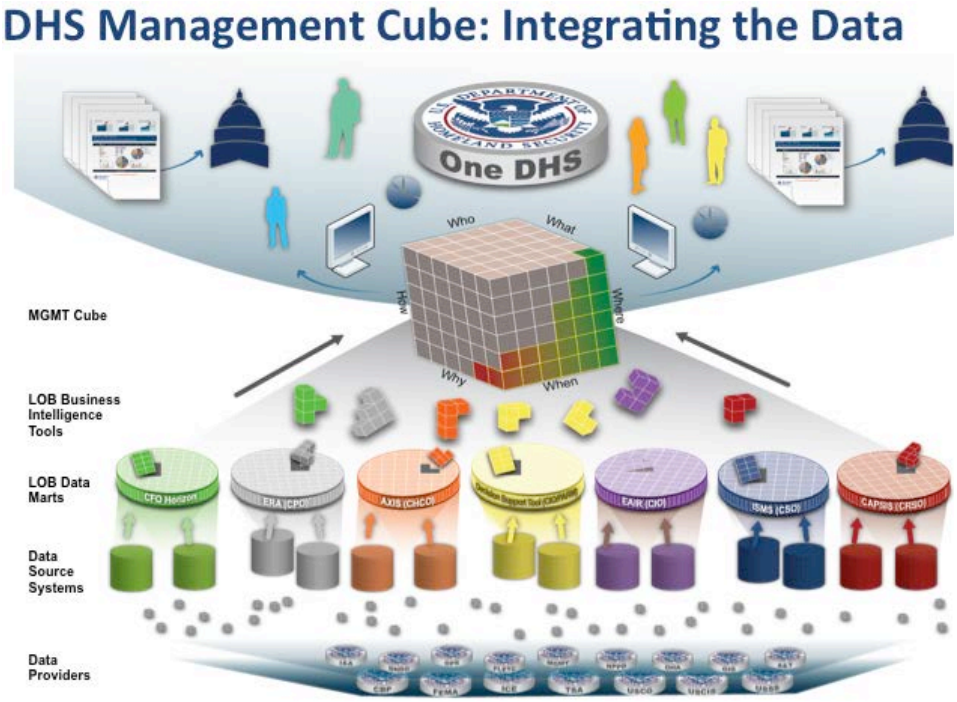
Figure 6. Information between the LOB Data Mart and the Management Cube



One of the earlier depictions of the relationships of systems and the flow of data as presented in the U.S. Department of Homeland Security, Management Directorate, *Management Dashboard Update*, Washington, DC: January 16, 2014.

126 Ibid.

Figure 7. Later Conceptual Model for the Management Cube



Source: U.S. Department of Homeland Security, Management Directorate, *Management Dashboard and LOB Data Mart Briefing to USM Leadership*, Washington, DC: September 10, 2014.

C. POSITIONING DATA WITHIN THE DEPARTMENT

"Fundamentally," Mr. Borras stated, "the roll of data is to better equip everyone at all levels of the organization—from the executive down to the border agent—to make better decisions and act as a common denominator for deliberating decision-making." He went on to note that shortly after arriving at DHS as the USM he concluded, "Headquarters, and by extension the Secretary, had limited decision-making capabilities independent of what came from the Component organizations." This point—the dynamic of the individual Component's producing information versus the Department generating information—begged the question: Could data—once fully vetted and approved—be positioned as part of the decision-making process in DHS, given the recognized culture and organizational factors with the Components and breadth of oversight bodies? This question was raised with each of the interview participants. The responses varied and generally lacked unanimity. However, the majority did believe, as Mr. Schied noted,

"data should be the start of the conversation, not the end…it is the foundation for having a productive dialogue." To this point, Mr. Borras responded that data should be fully transparent and propagated to those who need it and never be used to play "gotcha." He explained that he established an expectation, despite reservations by many within the Management Directorate, that data would never be shielded from relevant and authorized Department-wide stakeholders.

In further discussing this topic, Mr. Borras explained that his policy pertaining to information sharing was that prior to any discussion or decision where data was available to inform the conversation, the information would be distributed in advance to ensure all parties were privy to and able to prepare against the same information. It was important to him that all Departmental stakeholders were able to coordinate and collaborate on equal footing as it pertained to information. As such, the role of the Management Cube was referred to in many manners, such as "everyone reading from the same sheet of music" and creating a "single version of truth" for the entire Department to recognize. Mr. Borras referred to it as "the DHS information Bible" for information and performance oversight. The implication was that Management Cube would be a single authoritative, transparent source for the Department to utilize for collaboration and decision-making.

However, just as the Bible has many versions and interpretations, there were interview participants who were apprehensive of the ability of the Management Cube to achieve this level of maturity. Mr. Schied specifically noted that for data to become engrained within an organization—a goal he noted he was striving towards within CBP—it requires context, expectations, and performance indicators. Further, he noted that it requires leadership to demonstrate that they are using data for specific and intended purposes and that data needs to be framed against mission and mission drivers. Given the breadth of the Components and disparity of missions, it was questioned whether DHS could consistently and distinctly frame data in a context that applied to each Component.

Along those lines, Mr. Schied—when discussing the need for context and performance indicators as a mechanism to frame data—also recognized that the type of performance data the Department is striving towards can be described as both

quantitative and non-quantitative. Quantitative data, as he explained, was more factual data that could be easily reasoned. He used the example of CBP's real estate data that included attributes such as square footage, rent costs, employee counts, and other descriptive attributes about buildings, land, and structures. Mr. Schied explained how he could use this data to outline and present CBP mission leaders with their real estate costs and footprint. This provided him an opportunity to engage in a dialogue with the mission leaders to determine if they had the right real estate and space configurations. Along those lines, it also presented him an opportunity to present options to help these leaders understand and reduce their footprint and lower their costs; thus, allowing these costs savings to be reallocated for other mission objectives, such as training or filling billets. Mr. Schied noted that this is how quantitative data should be positioned—as the basis of a discussion to garner agreement on how the business can be tailored to more improve mission effectiveness. In other words, better business practices can have direct impact on enabling more resources for the mission, he explained.

Mr. Schied's scenario demonstrating how quantitative business data is being used to enhance mission is relevant. The reason it is relevant is summarized by Ms. Duke when she noted, "the historical cultural of 'mission' over 'business' within DHS as opposed to business supporting and driving mission—these have always been seen as mutually exclusive. They [mission leaders] failed to acknowledge that sound business practice, such as a good budget or acquisition process, were enablers of missions." She articulated that the Department's law enforcement and security-based missions had always trumped and operated in silos of "business" within DHS. The perception—which was even more prevalent during the Department's early years—is that the "business" side of the organization (i.e. Management) was in fact more of an administrative burden that served to hinder the mission's side.

Mr. Schied's scenario demonstrates that positioning quantifiable data as the foundation for a discussion to understand mission support decisions and explore options can result in an environment where the business functions are enabling better use and performance of mission resources. Mr. Schied discussed the importance of developing uniform and prescriptive polices and instructions and supplementing them with internal

controls within processes and systems as required elements for positioning quantitative data within the organization. Another fundamental question facing the Management Directorate concerns whether it can replicate this equation and position quantitative data within the conversation without having the immediate context and organizational alignment to the mission.

Returning to Mr. Schied's point about performance data being either quantitative or non-quantitative; non-quantitative data, which is prevalent and typically manifests itself in the form of dashboard reports (e.g., stoplight dashboard [red, yellow, green]) and key performance indicators, is information that cannot stand alone without some level of interpretation. Non-quantitative data, as Mr. Schied described it, requires a level of subject matter expertise, is contextual and potentially spurious, and is prone to agendas. This discussion led to the topic addressed by many participants regarding an organization's need to develop a "culture" for institutionalizing data. In addition to all the other challenges surrounding the ability to adopt non-quantifiable data—uniformity, interpretation, agendas, lack of systems, validation and verification, and context—one of the key challenges is simply developing an organizational trust. Once leaders identify priorities and begin to measure their progress through performance oversight, non-quantifiable data will intuitively be skewed and predisposed to bias.

To exemplify his point, Mr. Shied presented his executive key performance dashboards and noted, "I am 50/50 with this data, which means while I am dubious of 50% of the data, I actually have confidence in the other 50%. That is actually saying something [inferring that the data had evolved and gotten better from when he started the dashboards]." He then provided examples of where certain metrics within the dashboards were presented as green, but the underlying supporting data indicated the metrics were more likely yellow. These examples brought him to the topic of developing a culture of trust, which starts by underpinning data without it being punitive. There needs to be an opportunity to allow an open, honest discussion about the status of key initiatives without it being posited as judgmental or reflective of individual performance. Mr. Schied noted his desire was to create a culture where he could have frank discussions about the actual status of metrics, without having to invest in resources to investigate/interpret them, so

collectively CBP stakeholders could determine how to improve performance. As Mr. Schied surmised, some of the objectives and their associated challenges he was experiencing within a single DHS Component made it hard to fathom how the Management Directorate could scale and tailor them across 22 Components.

D. DATA MUST BE PLACED IN THE SUNLIGHT

The following section discussed the organizational and cultural factors influencing the ability to position data within the organizational dialogue and decision-making processes. It recognizes that the considerations associated with this goal transcend implementing an accepted set of tools and systems. There were examples provided about the power of management information to mature and enhance the missions of the Department. Building upon this last section, this section will discuss tactics for positioning and maturing data to adapt to the organizational and cultural factors.

Mr. Borras explained that a central tenant to his philosophy related to instilling a data-driven decision-making culture within DHS was that data must reside in a central system that is accessible and easy to use. To this point, Mr. Borras stated, “The best way to use data is to place it in the sunlight.” He went on to explain that when he first began to utilize data from BIaaS data marts within discussions and decisions, he received significant pushback from his internal advisors. Many warned him that the data he was referencing was unstandardized, unverified, and unreliable and that he should proceed with caution when utilizing it. His response, as he put it, was essentially this: Is the data an accurate reflection of what submitted by the program offices? Once Mr. Borras had a level of confidence that the data marts were synchronized to the source data, he felt he had no choice but to utilize the data. He explained that if he was going to get the leaders of the Department to focus on maturing and embracing their data, he required a forcing function. Using the data irrespective of his initial confidence was such forcing function, he said. He noted as soon as he began to position and reference the data from these tools, he saw the changes he had desired and anticipated—and the data got better incrementally over time.

Mr. Borras further expounded that his efforts to position data and develop and institute the Management Cube "was never an information technology project. We will enable our success through the use of technology and technology tools, but it was fundamentally not an IT project. And I did not waiver on this." He went on to note that these efforts were primarily focused on fundamental business integration activities—such as aligning people, processes, policies and then systems across the Management Directorate—and was the reason why he required an executive representative from each of his core lines of businesses and had the Deputy Chief Financial Officer co-chair his chartered Business Intelligence Dashboards ESC. He noted that by positioning the business owners to lead this initiative and initially focus on business collaboration, such as identifying and agreeing to business terms and standards, it allowed the group's concentration to set a precedence not on the technology underpinning the initiative, but on the business drivers. He noted that his CIO group, most notably Keith Trippie and the ESDO group, were business people themselves and understood the need for the information technology to be placed on the backburner. Because the CIO leaders had business backgrounds, these individuals were valuable in supporting the collaboration exercises and then subsequently bridging to the technology discussion when it was appropriate, he recognized.

Mr. Borras—along with many of the other participants—recognized that the law enforcement culture within DHS would be an impediment to developing an information-sharing environment. The target environment, as best described by Mr. Trippie, would be one of "share first with controls." From the conversations, it was clear some core tenants were foundational to the culture surrounding the Management Cube and its objectives. They include: A) placing data "in the sunlight," B) focusing on the business drivers, not the enabling technologies, c) refraining from playing "gotcha" with data and propagating a single "version of the truth" to all stakeholders for discussion purposes, and d) developing tools that are easy to use and available to all authorized officials.

E. ANSWERS TO QUESTIONS NO ONE HAS ASKED

One of the challenges that has emerged and has become apparent as the individual data marts and the Management Cube have been deployed and have started to evolve is that the workforce is not prepared to utilize these tools effectively. Ms. Marcott noted that one of her concerns is not just the lack of analysts using these tools, but also the lack of analysis being applied when using them. Mr. Myers and Ms. Marcott both discussed the fact that Management Directorate's workforce became acclimated to conducting processes in a vacuum where data was not available and, as such, may not have the necessary proficiencies and skillsets to utilize these tools as they are intended. Several potential reasons about why these management tools were slow to be adopted and why there may be some perceived resistance to them were explored.

One such reason provided by Mr. Myers pertains to the cultural precedence the Management Directorate's workforce had to overcome. Almost all processes had been established without the availability of data. When data is required, it typically involved a coordinated, specific manual data call to the Components led by the Management Directorate. Now that certain data is readily available, there is a level of change management and training that must be implemented – a process which has not necessarily been prioritized. In other words, these tools not only require a learning curve, but also require a mindset change to ask questions of the data that were never previously an option.

Another related topic discussed during the interviews pertains to how data will also increase a feeling of personal accountability and transparency. In other words, in the past when a question was asked, the responder would be able to provide a response that could not be validated or substantiated. These data marts are providing repeatable, consistent data that is accessible and able to be trended. It was noted that not everyone was comfortable with the accountability these tools are providing. These tools may also allow for the un-substantiation of past claims or facts, which may also be creating a level of resistance to adopting these tools. This observation speaks to the previous points raised by many of the participants about developing a culture of trust and non-punitive discourse in tandem with deploying these tools.

Another issue that was raised involves the fact that the Management Directorate's personnel have been slow to embrace both the data and the systems themselves. In other words, personnel are not taking the time to learn how to use these systems, despite the fact they were selected and implemented with a focus on user-friendliness. Reasons provided for this—in addition to the apprehension surrounding the data itself—is that the Management workforce is senior in ranks and is constantly balancing numerous priorities. Combined with not having information tools to underpin their legacy processes, the demands on the workforce and their collective seniority was viewed as an impediment that needed to be actively managed to increase user adoption. Identifying and/or hiring more junior-level personnel from generations that were more comfortable with IT and systems was a proposal that was raised by multiple participants. As it pertained to the Management Cube, Ms. Marcott discussed how there would need to be an initial level of user adoption of the individual line-of-business data marts prior to the user adoption of Management Cube. This is due to the personnel having more familiarity and understanding of LOB data contained in their office's data mart, as opposed to the Management Cube where the data reflected and transcended all lines of business. In other words, if there were challenges of user adoption at the line of business/data mart level, the lead-time for the adoption of the Management Cube would be longer based on the logic that there was less familiarity with the data at this consolidated level.

The user adoption issue corresponds with another factor, which involves the lack of "analysts" to utilize the data. Since the Management Directorate was established in an environment with limited data, the workforce did not necessarily require analysts because there was little information to analyze. Now that significant strides have been made towards gathering data, multiple research participants expressed a level of frustration with the fact that the data was not being used to conduct analysis. Many of the participants noted that it seems that the data, when used, was being used in a very factual manner to answer tactical questions and generate requested reports, but that few were actually conducting analysis. In discussing this topic, Ms. Marcott stated she was, "looking to answer questions that had not yet been asked or in other words looking for core patterns or themes to be identified in the data." Along these same lines, there was

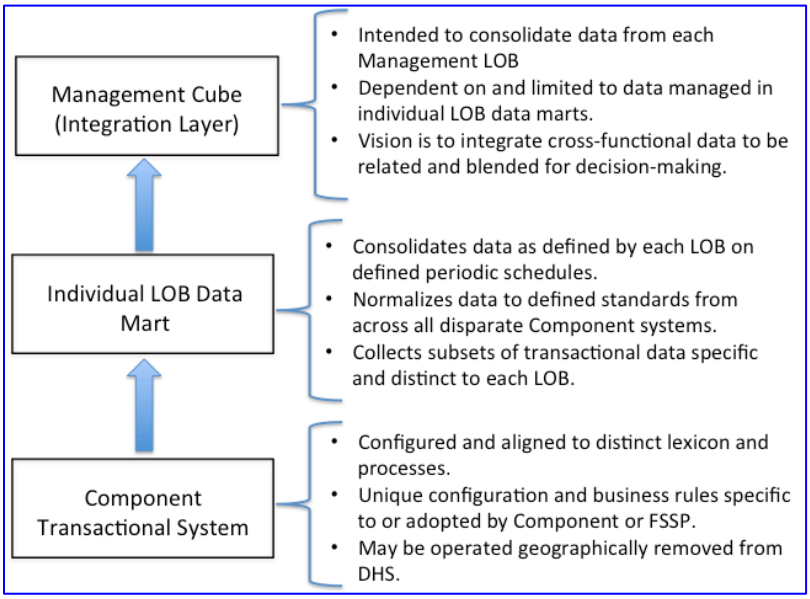
recognition that the Management Directorate may need to augment its workforce with training and/or hiring actions to develop competencies that can, as Mr. Trippie noted, "unleash the analysts and truly position the service it to be a readily available tool in the Department's decision making toolbox." The implication being that this investment in data marts and the Management Cube, if not complemented by Change Management, could "easily be an expensive tool that very few ever took out of the toolbox and used," Mr. Trippie said.

F. FINDINGS AND ANALYSIS

The Department is modernizing its transactional management information systems via a decentralized model. The predominant management functions, such as financial management, procurement, and asset management, are intended for modernization via the federal financial shared service providers, although this model is still in its infancy. Irrespectively, there will be multiple systems and/or service providers per business function for the indefinite future. Thus, there needs to be strategy to centralize, consolidate and integrate management data from each business function, irrespective of where the corresponding transactional systems reside. In response to this model and at the direction of the USM, the individual lines of business pursued the implementation of distinct data marts. This approach has demonstrated varying degrees of success for the individual lines of business. Based on the success of these individual data marts, the USM has pursued and funded the Management Cube as a consolidation and integration layer for each of the data marts. The Management Cube is intended to be the single version of truth for management information within the Department.

This flow of management information from these three levels is depicted and displayed in Figure 8, which is the author's representation.

Figure 8. Systems' Layers Involved Information Flow



This strategy is organizationally more suitable for the Management Directorate because it demonstrates alignment with its authorities and its mission pertaining to conducting oversight and performing assessments. Prior strategies lacked this alignment. It also adheres with the Management Directorate's decision not to pursue standard operating procedures or a command-and-control operations model. This strategy allows each line of business to define standards in the form of a data dictionary, business rules, and reporting periodicity and allows each Component to determine how to adopt their systems and processes to these standards. By investing in data quality, verification, and trending processes within the data marts, the lines of business can assess how each Component's data is adhering to these standards and how the data is improving and adhering over time.

Despite this model being more suitable for the Department, the Management Directorate is experiencing challenges with its execution. Some of the challenges stem from the fact that this strategy is not centrally funded and there is not an overarching methodology used for implementing it consistently across each Management Directorate's line of business. In other words, each line of business prioritized and funded

their data mart at varying levels, which means there is disparity in the maturity and veracity of data. Also, the lack of an overarching methodology means that there is not one consistent model for maturing and extending the data marts. These two issues combined means that even though the data marts are centralized on the same BIaaS platform and can be easily integrated, the maturation and enhancements of the data marts are dependent to the prioritization and influence of the individual lines of business. Therefore, as the Management Cube is designed and developed, it will be limited to the constraints of these data marts, the data housed within them, and the ability to influence the lines of business to expand and mature them.

Another challenge is that while it is relatively technically straightforward to consolidate the incongruent data sets from each data mart into a single data warehouse, it is much more complex and requires specific functional subject matter expertise to contextually integrate the data. This means that pulling data from each data mart into the Cube is a technical exercise that is relatively innocuous. However, the horizontal integration of data across the individual data marts and the ability to drive top-down standards for information that either A) spans more than one line of business or, B) does not directly align to anyone single one line of business but is still required at the Management Directorate level, and requires cross-functional business expertise and a level of governance that may not be conducive with the confederate model to which the data marts were established. There were multiple examples of these types of scenarios discussed over the course of the interviews.

There are other core philosophical questions the Management Directorate needs to address to determine what the Cube's value proposition is and where it should focus its resources. Is the Cube primarily a visualization and analytical tool focused on supporting front-end users and analysis or if it is a management integration tool focused on horizontally integrating the Management Directorate's lines of business data? Who is the Cube's primary target user base—meaning is it trying to serve a wide swath of analysts for answering numerous immediate questions or is it looking to be more of a strategic/ executive-level analytical tool? The answers to these types of questions will have

significant impacts on the evolution of the Management Cube, how the workforce will be positioned to utilize it, and its ultimate value proposition for the Department.

Despite these challenges, progress is being made and information is being collected within the line of business data marts and then into Management Cube in a manner that was never previously possible. Because of this progress, the Management Directorate is gradually beginning to position data within its governance and decision-making processes. In positioning this data, the issue of the information's quality and accuracy is of justifiable concern. There was general consensus that for information to be positioned into the decision-making process there must be some consistent governance and rules of behavior established. Ultimately, though, there was recognition that there must be commitment to positioning data for decision-making, irrespective of the initial concerns with quality. This commitment is needed to ensure that there is subsequent investment across the Components in maturing their processes as aligned to the data and to ultimately increase the veracity of the data. Without this commitment, there will not be a consistent, comprehensive focus towards increasing the data's quality. Notwithstanding, this process needs to be done in a collaborative and transparent manner so that all Components are clear of the expectations and governance surrounding the data and its related governance.

The decision to drive these business tools towards "share first with controls" data governance is a transformative and delicate one. Essentially, what this decision means is that as opposed to each Component's authorized users being relegated to viewing solely their own Component's data (but not Department-wide data) within these tools, they would be able to view all Components' data. Because of the Department's law enforcement and security missions, DHS has always operated under a "need-to-know" posture in that information was held tightly and shared solely with those who had demonstrated a valid "need to know." Shifting to "share first with controls" posture for management information allows anyone who has been approved for access to these systems to have comprehensive admittance to the data. This approach places the burden on the Management Directorate to ensure the appropriate security controls are in place and that there is a rigorous screening and audit process to those who have access to the

data. These tools house management information that when aggregated could be of risk to the Department, if improperly accessed. However, given the organization dynamics pitted against the Management Directorate towards driving management integration, it appears sensible for the Management Directorate to accept and mitigate this risk through investing in governance and security controls. The shifting from a "need-to-know" to a "share first with controls" is currently ongoing and has not yet been comprehensively adopted by all lines of business, but there appears to be significant momentum in support of it. That being the case, it may be only a matter of time until this governance model is adopted and formalized.

In conclusion, the use of data warehousing and business intelligence tools combined with USM-sponsored oversight and governance is providing a foundation to integrate the Department's management functions in a coherent and transparent method. While there are some obstacles in developing and maturing the tools in a uniform and consistent manner, these obstacles can be overcome with sound management practices. Despite these obstacles, this strategy appears to be the one best suited against the organization and cultural dynamics inherent in the Department. This model positions the Management Directorate to operate within its authorities by establishing data and systems policies and standards, while allowing the Components to maintain control over their systems and processes in alignment and adherence to the policies and standards. Further, the combination of these tools with the focus on shifting the data governance from a "need-to-know" to "share first with controls" is instituting transparency and visibility across the historical Component silos, which has the potential to mature and integrate the management functions in line with the "Unity of Effort" and "One DHS" goals.

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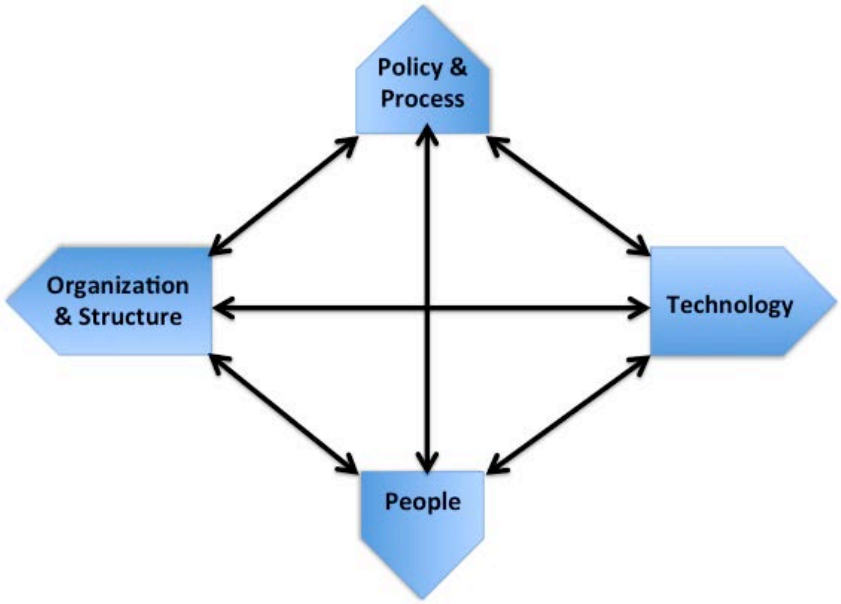
VII. FINDINGS AND CONCLUSIONS

This chapter will be used to apply the data and analysis from the previous chapters and determine what it means. It will then present recommendations that the Department should consider based on this research. These findings and conclusions will be organized around the areas of "Organization and Structure," "Policy and Process," and "Technologies." These areas correlate to three of the four corners of Leavitt's Diamond, depicted in Figure 9, which was the analytical framework selected for this thesis at the onset of this research. The research from the literature review and the interviews was conducted with the understanding that change cannot happen in a vacuum. Therefore, to influence meaningful change, the Management Directorate's initiatives need to obtain balance across these dimensions. Background information on Leavitt's Diamond can be found in Chapter II under the section titled "Analytical Change Framework: Leavitt's Diamond."

Figure 9. Leavitt's Diamond Adaptation



There are numerous adaptations of Leavitt's Diamond found in literature. This adaptation stems from the model found in *Strategic Knowledge Management in Multinational Organizations* by Kevin O'Sullivan (Hershey, PA: IGI Global, 2007), 64.

The "People" dimension was the only corner of Leavitt's Diamond that was not represented in the data because this dimension pertains to incentives/rewards systems designed to drive change, which was not within the scope of this research.

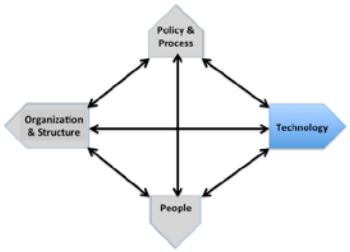
This chapter will also address the original research questions identified at the onset of this research project, which included:

> Primary Question:
>
> What are the likely impediments associated with the goal of collecting and managing enterprise-wide management data and from where do these impediments originate?
>
> Secondary Question:
>
> How do these impediments relate to the primary technology strategies the USM is currently using in an attempt to meet this goal?

A. APPLYING DATA TO LEAVITT'S DIAMOND DIMENSIONS

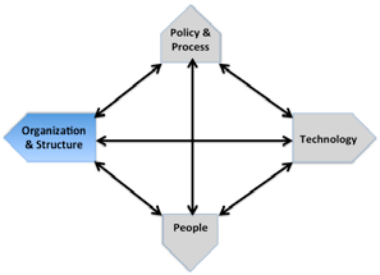
This section applies research data and categorizes core themes into one of the three dimensions of Leavitt's Diamond. In this context, the framework applies to the Management Directorate's ability to drive change pertaining to data-driven decision-making and the IT systems-related initiatives required to implement this objective. When applying the data to a dimension, the themes will be categorized as either an "Impediment" or "Facilitator." Impediments are factors that obstruct the ability of the Management Directorate in achieving its goals of data-driven decision-making. Facilitators are factors or initiatives that the Management Directorate has employed to accomplish this goal and mitigate certain impediments.

1. Technology



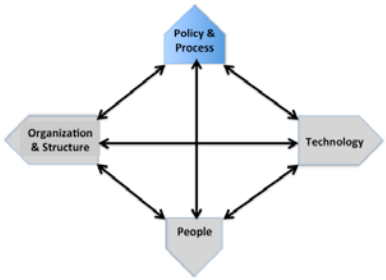
Impediments
Acquisition and competition regulations resulting in repeated protests that undermine technology strategies.
Changes to federal guidelines, predominantly made by OMB, that lack clarity and enforcement, and impact initiatives already in process.
Size and complexity of technology projects, which increase costs, risks, number of stakeholders, and oversight.
Pattern of failures when attempting to modernize systems in a centralized, enterprise-wide manner.
Facilitators
Investment in enterprise architecture that has established mission and business segment architectures—demonstrates a repeatable, proven methodology.
Investment in a data consolidation strategy as means to conduct oversight and perform assessment, and requiring this investment be developed on a centralized DHS platform.
Formalized governance to mature and integrate data warehousing and business intelligence solutions (albeit without dedicated funding source to reinforce governance).
Adoption of FSSP model to allow Components to independently modernize systems within boundaries of existing federal providers.

2. Organization and Structure



Impediments
Demands associated with NCR operations detract from primary core strategic missions.
Legacy cultural and environmental dynamics associated with individual Components.
Volume of Congressional and third-party oversight engaging at both Component-level and Department levels.
Role of political cycles on leadership attrition and its impact on priorities and Component engagement.
Reactive, event-driven nature of DHS results in too many priorities and focus on "urgent, but not importance activities." Management Directorate is not organized effectively to counteract the event-driven nature of DHS.
Facilitators
Evolving focus on oversight and assessment missions as a core capability that aligns with existing authorities.
Generational attrition within Components resulting in a workforce less tied to legacy cultures and less resistant to Management Directorate engagement.
Consensus-driven governance model provides forum for dialogue and partnerships.

3. Policy and Process



Impediments
Lack of command-and-control environment as a means to institute change.
Inability to enforce existing authorities and lack of institutional governance.
Challenges with formalizing prescriptive policies and instructions.
Inability to adopt standardized operating procedures.
Historical lack of cross-LOB integration in organizational structure and structure resulting in silos, inconsistent priorities, and non-interoperable data.
Facilitators
Developing standardized training curriculum for all newly hired DHS personnel.
Adopting industry and federal standards for policy and instruction.
Utilizing OIG and GAO audits to influence change and enhance inter-departmental relationships.
Centralizing, standardizing, and repurposing regulatory, statutory, and legislative reporting requirements for oversight/assessment purposes.
Demonstrable progress and maturation at LOB-level with Component stakeholders to mature oversight/assessment capabilities.
Adopting “share first” governance for transparency, removal of Component silos, and positioning data as part of the decision-making process.

B. APPLYING THE ANALYSIS TO THE RESEARCH QUESTIONS

In the article "The Effects of Organizational Culture and Environmental Pressures on IT Project Performance: A Moderation Perspective," Schein defines organizational culture as "a pattern of basic assumptions that are invented, discovered, or developed by a given group as it learns to cope with problems of external adaptation and internal integration."[127] Schein went on to provide interrelated findings that lead him to theorize that organizational culture has a direct impact on IT project performance.[128]

The results of this research demonstrate that the Management Directorate's technology strategy pertaining to the acquisition and implementation of a single centralized ERP system was not in alignment with its authorities and mission. An ERP system is predicated on the adoption of a singular set of management processes and a distinct set of business rules. Since the Management Directorate decided not to pursue standardized operating procedures and has not adopted a "command-and-control" model, it does not have the ability to influence these conditions, which are necessary for an ERP to be successful implemented. Therefore, the pursuit of a centralized ERP system as a systems modernization strategy resulted in the misalignment of the "Policy and Process" and "Technology" dimensions of Leavitt's Diamond.

Conversely, the parallel strategies associated with the decentralized systems modernization model with the data consolidation and integration model, via the data warehousing and business intelligence tools, appears to appropriately align the "Technology" and "Organization" dimensions. This is because the decentralized systems modernization model allows the individual DHS Components to evaluate and select solutions, though primarily based on the OMB FSSP governance, that best align with their distinct requirements. However, the Management Directorate is still able to influence aspects of these solution's core configurations, such as the Core Accounting Structure and Accounting Classification Structure, as a means to drive data normalization

127 Vicky Ching Gu, James J. Hoffman, Qing Cao, and Marc J. Schniederjans. "The Effects of Organizational Culture and Environmental Pressures on IT Project Performance: A Moderation Perspective," *International Journal of Project Management* 32, no. 7 (October 2014):1170-1181.

128 Ibid.

and uniformity across the disparate solutions. Along those lines, this approach of using standards to drive towards data normalization and uniformity establishes effective alignment between the "Policy and Process" dimension with "Organization" dimension.

Meanwhile, recognizing that a single centralized solution was not going to materialize, many of the Management Directorate's LOBs implemented individual data marts as a means to consolidate and analyze data for the purposes of performing oversight and assessment of their respective business functions. These data marts were initially established on data dictionaries primarily founded against the Department's legislative, statutory, and regulatory reporting requirements. The Management Directorate has experienced challenges instituting data standards that were not grounded against these forms of higher-level, third-party requirements. However, as policy and instruction have evolved and adopted the use of industry and government standards, progress has been recognized. The progress has materialized in the form of more prescriptive policies and instruction based on these standards, which are also being translated into data dictionaries and business rules with the LOB data marts.

The Management Directorate is identifying and instituting data standards and business rules into policy and instruction, but is recognizing progress through allowing the Components to determine the best manner for adopting and tailoring the standards into their distinct processes and systems. This approach is consistent with the Management Directorate's authorities to conduct oversight and perform assessments and this dual-pronged strategy—decentralized systems modernization in parallel to implementing LOB data marts for data consolidation purposes—has effectively aligned the "Organization and Structure," "Technology," and "Policy and Processes" dimensions.

This dual-pronged technology strategy will be more time consuming, resource intensive, and ultimately more expensive. However, when combined with the acquisition and competition regulations, which have continued to plague the Department in the form of repeated protests and a trend of failed centralized system modernization attempts, this model appears to be the most viable for accomplishing the targeted objectives. It is viable because the other options pursued are misaligned across the change dimensions, while

this dual-pronged strategy demonstrates the most consistent alignment across the framework's dimensions.

Coupling this strategy with the adoption of a "share first with controls" governance model will help transform the Department to drive towards its "Unity of Effort" goals. The historical "need-to-know" posture of the Department has allowed the DHS Components to continue to operate in silos and places the burden on the Management Directorate to independently drive integration. Adopting a "share-first" governance will inherently break down these silos to centrally position information where authorized analysts from all facets of the Department will be able to conduct assessments in a streamlined and holistic manner using tools that are instituted with Management Directorate-driven data standards. As it relates to the framework, the "share-first" governance does not necessarily align the dimensions as much as it transcends the dimensions as an overall change enabler for each.

C. RECOMMENDATIONS

One of the recommendations made by the 9/11 Commission Report in 2003 was to reduce Congressional oversight of DHS and its Components. At the time of its publication there were 88 Congressional oversight bodies involved with DHS. Ten years later, it was found that oversight of DHS had increased to 102 Congressional bodies. This anecdote reinforces the position that DHS is a highly political, complex organization where change—even change spearheaded by those at the highest-levels of government—faces immeasurable obstacles. Likewise, the Management Directorate is also a complex, political organization facing similar internal and external impediments to change.

This thesis attempted to study one long-standing objective. But as this research revealed, there are numerous shifting demands and objectives that the Management Directorate is continually attempting to balance. Further, the ability to drive change in the homeland security environment involves numerous factors spanning political, legal, economic, and interpersonal complexities. The following recommendations attempt to recognize these complexities and submit proposals that reflect these constraints. These proposals are not dramatic changes. However, these proposals are grounded on the

aforementioned institutional impediments and facilitators and, as such, strive to present viable solutions.

Additionally, the event-driven nature of the Department can impact its priorities at any given moment. Accordingly these recommendations build off the specific research conducted in this thesis.

1. Maturation of Data Consolidation Strategy

The Management Directorate's data consolidation strategy executed via the data warehousing and business intelligence model was determined to be the most consistent alignment across the change dimensions. As the maturation of this strategy is influenced by activities spanning each of the three change dimensions, maintaining consistency in the alignment of policy and process, technology, and organizational authority is critical. Furthermore, for this strategy to continue to be viable, it must parallel the ongoing systems modernization initiatives.

To successfully parallel these decentralized modernization initiatives, a two-pronged approach should be incorporated. First, as the future-state systems are designed and deployed across the Components, the Management Directorate should institute governance and controls to ensure consistent configuration and adoption of their core data standards and business rules. This approach will ensure enterprise-wide data interoperability and consistency of the future-state systems and that the data can be seamlessly consolidated moving forward. Second, it should ensure adequate funds are provided to recalibrate the data marts to collect information from the future-state systems. These data marts were framed by the limitations of the legacy management systems and once the future-state systems are implemented, the data marts should be able to collect a broader, more consistent set of data elements. There will be costs associated with the recalibration of the data marts, which should be anticipated. The costs to recalibrate the data marts have a direct correlation to the number of future-state solutions that emerge.

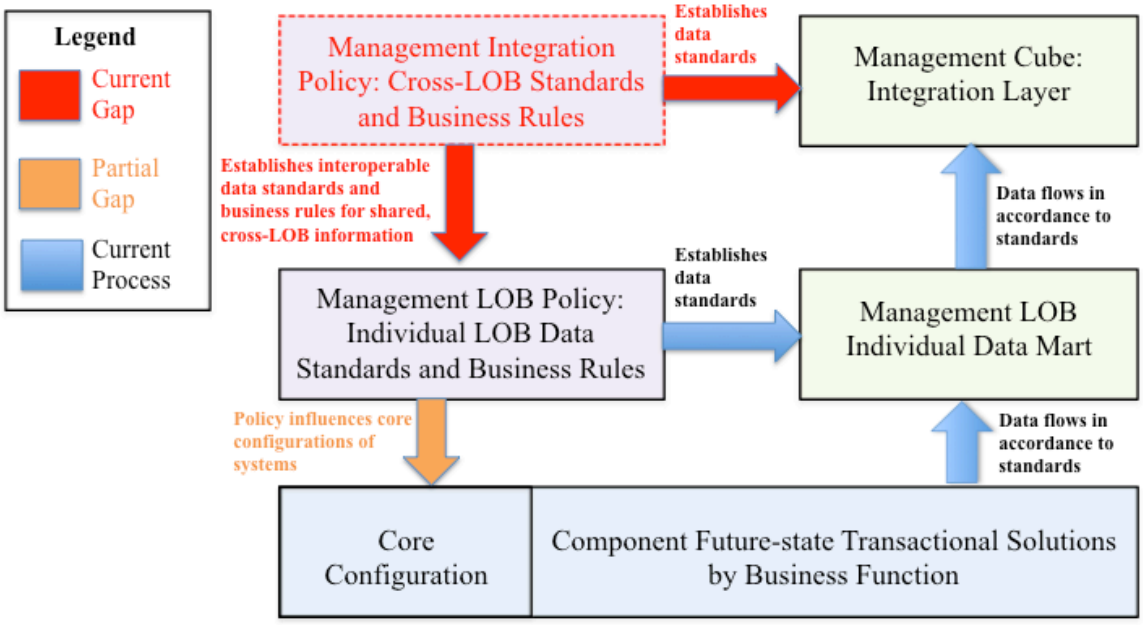
Along these same lines, if the data consolidation model is to be sustained, matured, and integrated, a few design principles should be adopted. The first such

principle is an overarching design methodology that provides for the consistent extension of the data marts by the LOBs. The second principle is a dedicated funding level. Because the data consolidation model was instituted, prioritized, and funded in a decentralized manner across each LOB, the various data marts are at different levels of maturity and functionality. This is an impediment for positioning these data marts to align to the overarching Management Directorate-level requirements.

Another mechanism that should be considered in the maturation of this strategy is investing in cross-LOB policy integration and de-confliction. While the Management Directorate's data integration approach to the individual LOB data marts via the Management Cube is demonstrating success towards consolidating data, it is not truly integrating the data. The inability to integrate the data is not a technology challenge, but is instead a policy one. The LOBs have matured their policy and data consolidation initiatives in isolation to their specific business functions, which have resulted in functional silos. Therefore, the information within these data marts reflects these silos. To overcome the insulated nature of the data marts, a top-down cross-LOB management approach is required to integrate policy, business rules, and data standards. Without this overarching policy integration approach, the Management Cube will struggle to successfully integrate cross-LOB data. This approach needs to be coupled with appropriate governance authorities and dedicated funding to ensure its recommendations can be implemented within the individual LOBs.

The relationship of establishing cross-LOB data standards to the data consolidation strategy is depicted in Figure 10.

Figure 10. Relationship of Policy-Driven Data Standards to Data Consolidation Efforts



This model is a depiction of the relationship between policy oversight (on the left) over the transactional systems and their configurations and the associated impact on the flow of data into the LOB data marts from these systems.

This model demonstrates that while there has been progress with instituting data standards from policy to the individual LOBs, there has not been a cross-Management Directorate approach towards identifying and standardizing data elements that are shared by more than one LOB. Because these shared elements must be ultimately embedded in the future-state transactional solutions' configuration, if they are to ultimately flow back and be captured in the Management Cube, this gap has significant ramifications. The Management Directorate should invest in governance and cross-policy integration to establish these standards and ensure they are consistently adopted by each of the LOBs. Failure to do so will impede the Management Cube from capturing data in a uniform and consistent manner from each of the LOBs.

Furthermore, the Management Directorate should ensure that it has consistent and effective influence and oversight over the core configurations of the future-state management systems. This influence, which could be instituted through the formalization

of segment architectures for each business function, is necessary to ensure that the data required for oversight and assessment purposes—and ultimately needed in the Management Cube—is adopted consistently within the Component's transactional systems. Without this influence, the Management Directorate will face substantial challenges in getting the targeted data consolidated. The longer the delay in establishing this influence, the more costly and time-consuming it will be to influence the future-state transactional systems. This is due to the fact that IT systems are more difficult and expensive to reverse engineer after they have been deployed. Therefore, the Management Directorate needs to ensure the core configurations required under policy are embedded into these future-state systems while they are still in the process of being designed.

2. Recommendations for Future Research

This section will be used to identify concepts that presented themselves in the data, but were tangential to the research questions. Further research is suggested to follow-up on these concepts to determine if there are other efficiencies or controls the Management Directorate should pursue.

a. Consolidation NCR Operational Support Activities

The demands of managing the operations of the National Capital Region, referred to "as the tyranny of the present" by one research participant, are a significant distraction of and drain on the Management Directorate and its personnel. Interestingly, DHS attempted to emulate the DOD's and HHS's UFMS model, but did not appear to seriously pursue these organizations' operations service support model. Both DOD and HHS have centralized service centers for all operational support activities in the NCR. The current operational support activities are fragmented across all the Management Directorate's LOBs. More research should be conducted to determine if centralizing these activities, similarly to how DOD and HHS have done, is recommended.

b. Internal Shared Service Systems

Certain Components have made significant investments in maturing transactional systems dedicated to meeting their specific management requirements (outside of financial management), such as grants management and facilities management. But these systems are being deployed in isolation by individual Components, despite the fact that multiple Components share the same requirements and are pursuing comparable, if not identical, systems. For example, CBP has acquired and enhanced a COTS-based facilities management system and FEMA has done the same for their grants management solution. CBP and USCG are both independently pursuing aviation management systems.

Along those lines, the concept of establishing voluntary-based internal shared service systems—or potentially a center of excellence model—for these specific functional business domains should be considered. Further research is needed to determine how investments made by individual Components to acquire and modernize specific management systems can be extended and leveraged by other Components who share the same requirements. Such research should explore the concept of internal shared services from multiple angles, including oversight, governance, acquisition rules, configuration change management, and cost-sharing methodologies.

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APPENDIX: INTERVIEW QUESTIONS

Listed below are the questions that were provided in advance of and at the interviews with each of the research participants.

Knowledge of Technology Strategies used to capture and integrate data:

- Did DHS HQ have the ability to collect data to inform strategic department-wide business decisions?
- If so, what was the primary mechanism or process used to collect data as a means to make decisions across the MGMT Directive?
- What were the identified strengths and weaknesses of this mechanism / processes?
- How did you influence or participate in developing the MGMT information integration strategy?
- What types of strategic decisions were targeted?
- Did DHS MGMT have the ability to influence and/or have the appropriate authorities to drive new strategies – and their associated changes - across the DHS enterprise during your tenure?
- Did DHS HQ have known challenges with leading and driving technology strategies on the behalf of the Components? Conversely, did the Components communicate their concerns with DHS HQ playing this role?
- What technology strategy was being pursued to drive management integration and data-driven decision-making?
- How did this technology strategy align with the people, processes, policies, and organizational considerations within DHS?
- Was this the right technology strategy to accomplish this goal for the Department? Why or why not?
- What lessons learned and recommendations were documented for application to future strategies targeted at this goal?

Knowledge of Systems Modernization Strategies:

- Did DHS HQ have known challenges with leading and driving technology strategies on the behalf of the Components as it pertains to transactional-based business systems? Conversely, did the Components communicate their concerns with DHS HQ playing this role?
- The modernization of enterprise business systems (i.e. ERPs like eMerge2, TASC, etc.) for financial management, procurement, and asset management has been a key focus of DHS for more than a decade.
- What were known challenges that impeded the success of these efforts?
- Does DHS MGMT have influence to drive and manage change as part of its systems modernization strategy?
- Does HQ have the ability to standardize processes across multiple Components?
- How do the legacy cultures, processes, and systems influence the ability to driven enterprise-wide change? How do these factors influence these technology initiatives?

Knowledge of Data Consolidation Strategy

- In lieu of standardized systems, DHS HQ has pursued the use of data warehousing and business analytics as a mechanism to collect and consolidate data. Are you aware of this strategy?
- What are the challenges and impediments associated with this strategy?
- Is this strategy able to capture data to information decision-make?

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