



Lifting the Fog of Foggy Bottom:

What NASA Can Teach the State Department
about Managing Knowledge

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This report was researched and authored by Beverli DeWalt, Rachel George, and Dan Spokojny. It was informed by a series of working groups conducted with current and former Department of State members. We are grateful for the contributions of Roger Forsgren, Moises Benhabib, Paul Kruchoski, and over two dozen other current and former State Department experts.

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WHAT NASA CAN TEACH THE STATE DEPARTMENT ABOUT MANAGING KNOWLEDGE

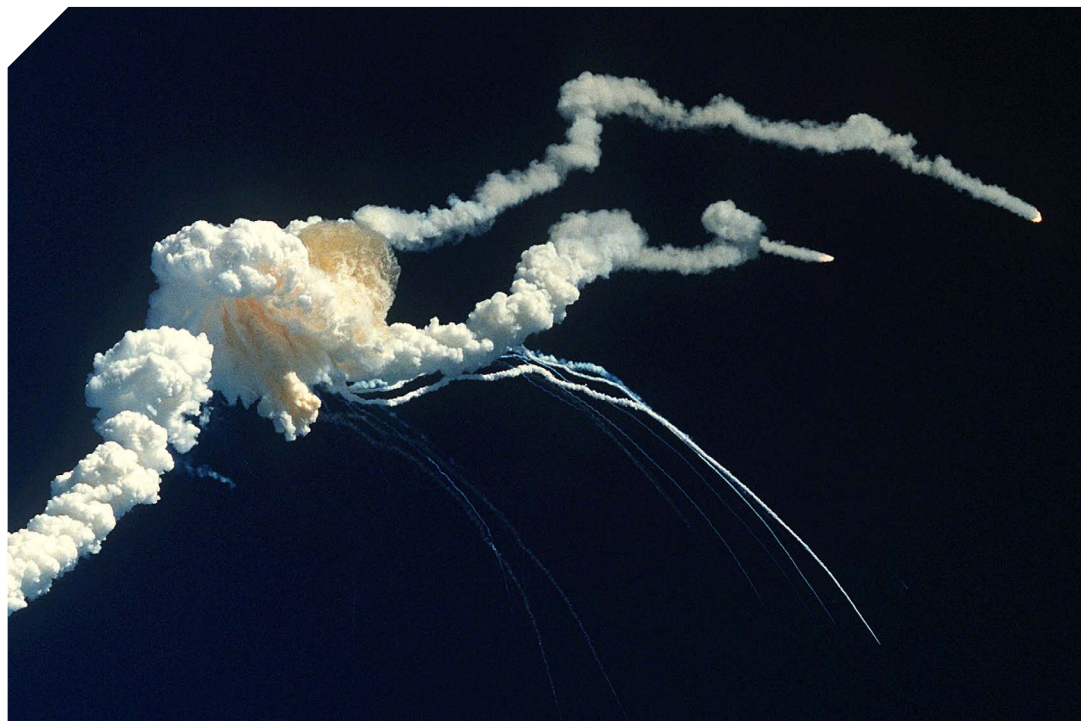
“I wouldn’t launch under these conditions,” a [key engineer told](#) the project director of the ill-fated Challenger space shuttle program in late January 1986. Numerous engineers expressed serious reservations about the durability of the O-ring on the rocket boosters, but their concerns were dismissed by senior leaders focused on meeting an inflexible launch schedule. The shuttle exploded during takeoff, killing seven astronauts.

Seventeen years later, the space shuttle Columbia disintegrated during reentry, suggesting to Congress that the culture at NASA was dysfunctional and required reform. Engineers had expressed deep concerns about Columbia but were overlooked. A major investigation into the incident discovered that, once again, the issue was not bad mathematics and engineering but rather poor decision-making and organizational culture.

Failures of diplomacy are rarely as clear-cut as a space shuttle exploding on live television, yet the problems at the State Department may be no less severe. A Harvard Belfer Center study warned that State faces a “[profound crisis](#)” of “support, funding, training, and leadership,” while a Senate study indicated a “[risk of catastrophic failure](#).” A recent survey of diplomats found that “[systematic management and morale issues plague the Department](#),” and insiders continue to fret about a deeply disempowered organization.

It is unclear what kind of disaster might force a serious reexamination of the State Department’s culture; none of the high-profile foreign policy failures of the 21st century seem to have forced the issue. The failure to achieve U.S. objectives in the wars in Iraq and Afghanistan, the inability to capitalize on the Arab Spring, global alienation during the War on Terror, the nuclearization of North Korea, or the descent into renewed Great Power competition—none have prompted the type of reassessment that successfully transformed NASA.

Rather than wait for the next catastrophe, the U.S. State Department should learn from NASA’s operational transformation. NASA’s response to its disastrous dysfunction was to develop a culture of **knowledge management (KM)** that has become one of the most [widely studied](#) and [respected](#) in the world. The recipe is easy. The State Department must, like NASA, prioritize knowledge as its most valuable resource and upgrade its decision-making processes to reflect that priority.



Information versus Knowledge

The concept of knowledge management was developed in the mid-late 1960s by the influential business theorist Peter Drucker, who saw that the economic advancements of the post-war era had created a **knowledge society driven by knowledge workers**. He theorized that in a knowledge society, knowledge is the main source of business success. Drucker **concluded** that a business must place the management of knowledge at the center of its operations if it wishes to innovate, grow, and compete.

Drucker's concept has since permeated the economy and shaped management philosophy everywhere. Endless case studies and academic research have demonstrated that effective knowledge management is associated with **improved organizational performance**, **increased profits**, and **increased innovation**. **One study** found that a robust knowledge management system can reduce information search time by as much as 35 percent and raise organization-wide productivity by 20 to 25 percent.

The State Department has been aware of knowledge management practices for at least two decades. A **2003 report** from the State Department defined knowledge management as “a collaborative and integrative approach to creating, capturing, organizing, accessing, using, and reusing intellectual assets – to get the right information to the right people at the right time to support management and decision-making.”

It's a good definition, but as the former head of NASA's knowledge management program **explains**, “There's a difference between information and knowledge. Information is everywhere and is basically useless to your workforce until it is refined into the knowledge they need to be successful.”

Information is abundant at the Department of State. The challenge lies in converting information into knowledge. As the volume of information has outpaced legacy processes and systems, too much of the most useful knowledge fails to reach officials in a timely manner. Key insights are buried in an avalanche of irrelevant noise, forgotten as officials rotate positions, and rendered inaccessible by stovepiping and poor technology.

In other words, the State Department has a knowledge problem.

Information v. Knowledge

Information

The entire population of existing pieces of knowledge available.



Knowledge

Information that has been refined and made decision-relevant for a targeted audience.

“There's a difference between information and knowledge. Information is everywhere and is basically *useless to your workforce until it is refined into the knowledge they need to be successful.*” – *Former NASA Chief Knowledge Officer*

Evaluating Status Quo Systems at State

A variety of systems might be construed as knowledge management at State. Let's evaluate the status quo:

Every year, the State Department transmits an estimated 250,000 cables. Though many are administrative, some contain history-defining observations and insights. George Kennan's "long telegram," for example, laid the cornerstone of United States policy throughout the Cold War.

The system that sends and receives official cables and communications to overseas missions is called "SMART," though its functionality is anything but. The SMART system, conceived in 2003 but not adopted until 2011, automatically directs cables to officers based upon a complicated system of issue- and country-specific tags. Most officials will receive dozens, if not hundreds, of cables at their computer every day. If a cable is not read as soon as it's published, it will disappear under tomorrow's deluge. Only the bravest officers dare tangle with the outdated search function interface; the system is not designed as a library so much as a newsreader.

A second vital knowledge process at State is the clearance process—still called the "paper process" even though it is largely electronic. In most respects, *the paper process is the policy process*. It pushes urgent and timely knowledge up the chain of command, enabling an array of experts to weigh in on a policy recommendation or analytical product before it arrives on a senior policymaker's desk. The process satisfies the need for officials to make decisions quickly while avoiding obvious mistakes, but it incentivizes a lowest-common denominator consensus decision rather than a serious debate about whether the policy will work. Policy decisions, once made, are not distributed or searchable to most of State's officials, nor is anyone responsible for tracking the progress of previous decisions.

The State Department seemed to be the last organization in the country to adopt email (it was not until Secretary Powell arrived in the early 2000's), but today, it's addicted to this outdated and inefficient form of knowledge-sharing. The email system buries officials under a never-ending avalanche of messages. Some officers we have interviewed report they regularly spend upwards of six hours a day answering hundreds of emails. Though some prefer emails to endless staff meetings; a common complaint is that staff meetings often regurgitate information that was already shared in emails.

The Office of e-Diplomacy in the Bureau of Information Resource Management has developed and implemented a handful of clever tools to enhance knowledge-sharing at State—Diplopedia, Microsoft Teams, internal social media platforms, and more—but none have had much [impact on the decision-making process](#).

In sum, numerous processes inside the bureaucracy—most prominently the clearance process and the dissemination of cables—are vital for converting information into knowledge. Yet all have failed to meet State's own definition of knowledge management, which requires "capturing, organizing, accessing, using, and reusing intellectual assets." The challenge is that these systems are designed to meet the immediate needs of the policymaker rather than systematically leveraging knowledge to support impactful policy making.

Science is a process of knowledge accumulation. Rather than reinventing the wheel, each scientist must "stand on the shoulders of giants," in Sir Isaac Newton's words. Devoid of strong knowledge management, the State Department prevents knowledge from accumulating except in the heads of the most experienced officials. Each diplomat must continually reinvent and rediscover diplomacy's secrets. There are no giants upon which to stand.

NASA knew a mismanaged knowledge environment could lead to a major catastrophe. Why has the State Department not come to the same realization?

UNCLASSIFIED



MRN: 13 STATE 329145
 Date/DTG: Nov 04, 2013 / 041818Z NOV 13
 From: SECSTATE WASHDC
 Action: TOKYO, AMEMBASSY ROUTINE
 E.O.: 13526
 TAGS: ACOA, KSMT
 Subject: SMART Cable Appearance with Rich Text

This cable includes rich text formatting, which is permitted in SMART. It includes specifics on various rich text formats so that you are able to see how SMART translates the information into legacy messaging formats.

1. This sentence is part of an auto-numbered list, a built-in Microsoft Outlook format
2. This sentence is in orange.
 - a. This is an auto-numbered list as part of Microsoft Outlook's outline feature.

The table below describes the SMART message types. Table formats are not preserved when SMART sends the cable to a recipient on a legacy or external agency messaging system.

SMART Message Types	Definition
Archive Messages	Archive messages are comprised of cables and record emails. These messages document the substantive functions for which an office is responsible.
Working Emails	Working emails are messages without long-term record value.

For specific guidance on using non-standard ASCII characters in your message, best practices for file naming, and foreign language characters, look up SMART Client Online help at this live hyperlink:
http://smartapps.state.gov/clientsupportservice/help/smart_client_help.htm.

Below is an embedded image of the SMART logo:



This is the end of the SMART cable rich text example. The rich text elements in this cable: auto-numbering, tables, font color, live hyperlink, and embedded images, are translated into plain text or (if not supported by plain text) are stripped to meet messaging format requirements dictated by legacy and external agency messaging systems.

Signature: KERRY

Explaining State Department's Failure to Launch

In today's State Department, *tacit knowledge* reigns supreme. This is a problem.

While explicit knowledge is captured and written down, tacit knowledge is more like “street smarts” and “common sense.” One scholar [describes](#) tacit knowledge as “created in the human mind as individual know-how... It is the unwritten, unspoken and hidden vast storehouse of knowledge of a person. It is obtained as a result of the direct interaction between individuals and their peers in the organization.”

This perspective is confirmed by State's senior-most leaders. “The only way I think you can actually learn the job is by watching those who have done it well,” [explains](#) Ambassador Barbara Bodine, the former Dean of Professional Studies at the Foreign Service Institute. Ambassador William Burns [writes](#) that securing U.S. national security interests “will require restoring the lost art of diplomacy,” and suggests “reinvesting in the fundamentals of the craft: smart policy judgment, language skills, and a feel for the foreign countries where diplomats serve and the domestic priorities they represent.”

Such views bolster the idea that “[diplomacy is an art, not a science](#),” a common refrain at the State Department. This perspective is a rejection of the value of explicit knowledge. It is rooted in the belief that the international system is too dynamic and complex for any sort of useful knowledge to be captured and made useful in another context. Policy effectiveness, the art-of-diplomacy theory suggests, arises from an elusive combination of good judgment and hard-earned experience. If this is true, a policy that works in one place or moment in time will have little relevance in another; knowledge must be constantly recreated from scratch.

These beliefs explain the almost complete absence of explicit knowledge procedures at the Department of State, including no [handover procedures](#) for its constantly rotating officials, the lack of [prescribed doctrine](#) to delineate best practices, and [little investment in research or training](#).

In other words, the absence of a modern KM system at the State Department may be an intentional choice, not an oversight.

State's reliance on tacit knowledge means that individual insight is prioritized over collective knowledge. Tacit knowledge cannot be disseminated, trained, evaluated, or replicated. Outside observers must simply trust that the decision-maker knows best.

But when each official relies on their [own judgment](#) in the policy process, [decisions](#) are grounded more on [personality](#) and [subjectivity](#) than most care to admit. Decisions supported by tacit knowledge are hard to differentiate from mere opinion because they are not easily evaluated for quality. Like beauty, the merit of diplomacy lies in the eye of the beholder.

Our point here is not that tacit knowledge is always bad. Human judgment will always be central to decision-making, especially when considering the ethical consequences of a policy.

Instead, we argue that *too much* dependence on implicit knowledge is dangerous. A reliance on tacit knowledge may have made sense when the Department was much smaller and technological capabilities were much more limited, but that is no longer the case. Today's State Department can make its decision-making more effective by building processes that accumulate explicit knowledge. The NASA case study provides a compelling and successful model for this task.

NASA's Recipe for Success

We know KM systems improve organizational productivity, but there is limited research on best practices for designing an effective knowledge management regime. So, when NASA set out to design their KM office, they approached it as they would any other novel engineering challenge: they designed a process from the ground up to meet the needs of their organization.

The first step of their process was to decide on the target audience, explains Roger Forsgren, NASA's first Chief Knowledge Management officer and author of [Lean Knowledge Management](#). This required some hard choices; they knew that if they tried to serve everyone, they would end up serving no one. Since engineering is the core of their work, NASA decided knowledge management should serve the engineers. The goal of the KM program was set: to make the work of the engineers easier and more impactful.

The second step was to develop a clear understanding of the most important knowledge their audience used to do their job. Once again, this required prioritization. Unfiltered or disorganized information would only distract from the more vital knowledge. NASA decided to prioritize knowledge about how their engineering processes functioned, with a special emphasis on sharing knowledge about potential failures. Other forms of information and knowledge, such as IT office regulations and administrative procedures, were intentionally excluded from the knowledge management system.

Recipe for KM Success



1. Identify target audience
2. Prioritize the most important knowledge
3. Design the organizational process and structures
4. Create a dissemination strategy

Third, the NASA knowledge engineers designed the organizational structure and process for their nascent operation. Without centralized authority for knowledge collection, organization, and dissemination, NASA knew their effort would fail. They decided to house the new Knowledge Management unit in the office of their most important user: NASA's powerful Chief Engineer. NASA implemented a federated model. Each of the half-dozen Space Centers had its own internal KM directorate, ensuring proper knowledge prioritization based on each center's expertise (e.g. Johnson leads human spaceflight, Kennedy runs commercial partnerships) while maintaining connectivity to the Chief Knowledge Management office.

Lastly, the Chief Knowledge Office had to decide how to disseminate its knowledge to its target audience, the engineers. The CKO developed quarterly convenings, trainings, and workshops, a one-stop-shop KM website platform, regular advocacy from leadership, and even a popular podcast that interviewed engineers to celebrate their failures and lessons learned. NASA also combined the CKO office and the training office to ensure that its curriculum was directly informed by the knowledge needs of the workforce.

Some might question the applicability of the NASA case to the State Department. Certainly, engineering knowledge is different from foreign policy knowledge. But NASA's choice to launch the ill-fated Challenge shuttle was not a black-and-white engineering decision; it was a judgment call. Further, NASA and State share a wonkish, insular, and proud culture that does not reward squeaky wheels, entrepreneurs, or non-conformists.

The key takeaway remains that organizations can improve the quality of their policy judgments by investing in knowledge management systems that make certain forms of knowledge widely available.

Lifting the Fog from Foggy Bottom

U.S. diplomats are intelligent, dedicated, and patriotic. But foreign policy experts believe that the State Department is **failing to live up to its potential** and playing **too minor** a role in the policymaking process.

The State Department does not need to wait for Congress, the president, or an “**army of consultants**” to fix itself. It cannot afford to wait for a Challenger-like catastrophe, in which experts inside the bureaucracy hold key knowledge that could have prevented the disaster.

Instead, State should start to work out some answers to NASA’s knowledge management script:

Critical Questions for Successful Knowledge Management at State



Who are the most important decision makers at State?

- Is it the desk officers who workhorse the policy process?
- Or perhaps the senior officials who are burdened with making the hard decisions under pressure?



What is the most important knowledge for diplomacy?

- The record of key decisions and their reasoning?
- Or perhaps the lessons learned for each official’s portfolio?

We offer no immediate answers to these questions—rather, a recommendation for deliberate internal analysis.

The good news is that innovative leaders at State are not waiting for a centralized knowledge management office to build their own systems. For example, the powerful and well-funded bureau of International Narcotics and Law Enforcement recently created its own knowledge management office to ensure that its programs are supported by best practices from recent evaluations. The office of eDiplomacy continues to experiment with knowledge management platforms that aim to break down stove pipes at the Department. Learning offices have taken root in the Public Diplomacy family of offices, in the bureau of Conflict and Stabilization Operations, and at the Foreign Service Institute. And the Executive Secretary continues to upgrade the memo management systems via Cascades and statereader. These are important efforts that lay the groundwork for a more centralized knowledge management system and provide evidence that these processes can work at State.

These offices have learned a key lesson: sharing knowledge systematically and intentionally can make the State Department stronger and improve the quality of U.S. foreign policy.