Communications of the Association for Information Systems

Volume 14 Article 4

August 2004

The 2003 Annual Report on Global Terrorism: An Information System Failure?

Steven Alter *University of San Francisco*, alter@usfca.edu

Follow this and additional works at: https://aisel.aisnet.org/cais

Recommended Citation

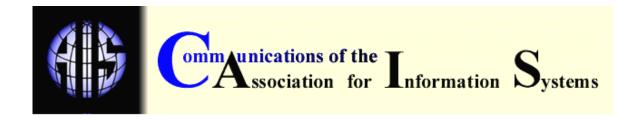
Alter, Steven (2004) "The 2003 Annual Report on Global Terrorism: An Information System Failure?," Communications of the Association for Information Systems: Vol. 14, Article 4.

DOI: 10.17705/1CAIS.01404

Available at: https://aisel.aisnet.org/cais/vol14/iss1/4

This material is brought to you by the AIS Journals at AIS Electronic Library (AISeL). It has been accepted for inclusion in Communications of the Association for Information Systems by an authorized administrator of AIS Electronic Library (AISeL). For more information, please contact elibrary@aisnet.org.





THE 2003 ANNUAL REPORT ON GLOBAL TERRORISM: AN INFORMATION SYSTEM FAILURE?

Steven Alter University of San Francisco alter@usfca.edu

ABSTRACT

This case study concerns a system that generated a contentious U.S. State Department report on global terrorism. For over 20 years, the Department produced and published an annual, non-classified, retrospective *Patterns of Global Terrorism* report. However, the report for 2003, published on April 29, 2004 was criticized as an attempt to misrepresent data for political advantage. This case is based on official documents, transcripts, and news articles available on the Internet in mid-July 2004. It summarizes the way the situation unfolded and provides a glimpse at how people tried to figure out what happened and how to explain what happened. Although this case occurred in a highly charged political environment, it involves many information system and organizational issues that are important in building and maintaining information systems, especially those that require categorization, coding, consolidation, and interpretation of data regarding customers, employees, sales and service activities, and the surrounding environment.

Keywords: information errors, coding of information, categorization of incidents, use of information, information system failure, Terrorism Threat Integration Center

Editor's Note:

In information systems, we learn more from failure cases than we do from successes. Yet, private companies usually bury information systems failures because they do not want the associated bad publicity. Most of the published case data about failures are those that involve governments or sensational courtroom trials¹ [Flowers, 1996]. Therefore, to learn about recent failures you must use examples from the headlines². No matter what your political persuasion, the problems encountered in 2004 with a seemingly simple accounting of the extent of terrorism are an example of what can happen. In this case study, Steven Alter looks at the series of events that transpired when the US. State Department reported that terrorism declined in 2003 from the previous years and later redid its findings to say it may have increased The case is completely constructed from official documents, published transcripts, and news articles that were accessed

الظ للاستشارات

¹ Flowers, S. (1996) Software Failure: Management Failure; Amazing Stories and Cautionary Tales" Chichester, UK: John Wiley and Sons

² A classic example of learning from failure (and eventual success) is the story of the Cuban Missile Crisis. Allison, Graham T.(1971) Essence of Decision: Explaining the Cuban Missile Crisis. Boston: Little, Brown, 1971.

via the Internet. While the author recognizes the embarrassment and politically charged atmosphere surrounding what was, perhaps only in part, an information system failure, the case write up tries to be politically neutral and leaves to the student the considerations of the interplay among the information system, the human use of the information system, and the externalities that were involved.

The eight questions at the end of this case deal with the information systems aspects. They ask students about :

- 1) identifying the information system in this case,
- 2) comparing explanations of errors that occurred,
- 3) coding of information,
- 4) viewing the Patterns report as an MIS,
- 5) assuring that information is used appropriately,
- 6) increasing the value of the Patterns report,
- 7) producing the report more efficiently,
- 8) applying themes in this case to corporate information systems.

CAIS welcomes other views of this case or of similar cases from previous or current administrations.

I. INTRODUCTION

In his June 13, 2004 appearance on the widely viewed television program "Meet the Press," Colin Powell, United States Secretary of State, surely was not surprised by questions about errors in the recently published 22nd annual report on *Patterns of Global Terrorism*. When the report was published on April 29, 2004, Deputy Secretary of State Richard Armitage cited the data in the report as evidence that the United States was prevailing in the war on terrorism. On May 17, 2004, a *Washington Post* article by two professors noted major flaws in the data reported and argued that that the data contradicted Armitage's claim. Congressman Henry Waxman sent Powell a formal letter asking for corrections. It was clear that the report contained serious errors, but the reasons for the errors were initially unclear. Some claimed the errors were accidental. Others claimed they were intentional.

Tim Russert of NBC News raised the issue by playing a video clip of Armitage making his claim about prevailing in the war on terrorism and noting that Congressman Henry Waxman "said that you are manipulating data for political purposes."

Powell responded

"The data that is in our report is incorrect." ... "Something happened in the data collection, and we're getting to the bottom of it. Teams have been working for the last several days and all weekend long. I'll be having a meeting in the department tomorrow with CIA, other contributing agencies, the Terrorist Threat Information Center, and my own staff to find out how these numbers got into the report. Some cutoff dates were shifted from the way it was done in the past. There's nothing political about it. It was a data collection and reporting error, and we'll get to the bottom of it and we'll issue a corrected report. And I've talked to Congressman Waxman." ...

"When you look at it in hindsight now, and you look at the analysis given to me by Congressman Waxman and these two [professors], all sorts of alarm bells should have gone off. All sorts of, as I say to my staff, circuit breakers should have dropped when we saw this data, and they didn't. But I don't think there was anything political or policy driven about it. It was just data that was incorrect, or it wasn't properly measured compared to the way it was measured in previous years. And so what we have to do is normalize the

data this past year, 2003, in the same way that we normalized data in previous years, and we will be putting out that corrected information as fast as we can." ³

This case is organized chronologically and subdivided as follows:

- Establishment of the Terrorist Threat Information Center
- Publication of Patterns of Global Terrorism 2003 on April 29, 2004
- Initial criticism of Patterns of Global Terrorism 2003
- Initial responses
- Presentation of a revised Patterns of Global Terrorism 2003 report on June 22, 2004
- Press accounts of the explanation of the errors
- Going forward

II. ESTABLISHMENT OF THE TERRORIST THREAT INTEGRATION CENTER

In his State of the Union address on Jan. 29, 2003, President Bush announced the creation of a Terrorist Threat Integration Center (TTIC). On the previous day the White House distributed a related fact sheet entitled "Strengthening Intelligence to Better Protect America." Here are selected bullet points from the fact sheet:

- The President announced that he has instructed the Director of Central Intelligence, the Director of the FBI, working with the Attorney General, and the Secretaries of Homeland Security and Defense to develop the Nation's first unified Terrorist Threat Integration Center. This new center will merge and analyze terrorist-related information collected domestically and abroad in order to form the most comprehensive possible threat picture."
- "Elements of the Department of Homeland Security, the FBI's Counterterrorism Division, the DCI's Counterterrorist Center, and the Department of Defense will form a Terrorist Threat Integration Center to fuse and analyze all-source information related to terrorism."
- "The Terrorist Threat Integration Center will continue to close the "seam" between analysis of foreign and domestic intelligence on terrorism.
- Specifically, it will:
 - Optimize use of terrorist threat-related information, expertise, and capabilities to conduct threat analysis and inform collection strategies.
 - Create a structure that ensures information sharing across agency lines.
 - Integrate terrorist-related information collected domestically and abroad in order to form the most comprehensive possible threat picture.
 - Be responsible and accountable for providing terrorist threat assessments for our national leadership."
- The Terrorist Threat Integration Center will be headed by a senior U.S. Government official, who will report to the Director of Central Intelligence. This individual will be appointed by the Director of Central Intelligence, in consultation with the Director of the FBI and the Attorney General, the Secretary of Defense, and the Secretary of Homeland Security."
- A senior multiagency team will finalize the details, design, and implementation strategy for the stand-up of the Terrorist Threat Integration Center

⁴ The White House, "Fact Sheet: Strengthening Intelligence to Protect America," Jan. 28, 2003, online at http://www.whitehouse.gov/news/releases/2003/01/20030128-12.html



³ U.S. Department of State, "Interview on NBC's Meet the Press with Tim Russert," June 13, 2004, online at http://www.state.gov/secretary/rm/33475.htm

At a Feb. 26, 2003 hearing before the Senate Governmental Affairs Committee several senators expressed concerns and issues about accountability and possible duplication of effort. Sen. Carl Levin questioned whether all of the agencies had clearly delineated functions.

"I'd like to see an executive order or a decision by the agencies involved placing the responsibility exactly where you say it is," Levin told the panel of FBI, CIA and of Homeland Security Department officials. "We cannot blur it. We cannot duplicate it." Without clear responsibilities, agencies will be able to "duck accountability," he said.⁵

Sen. Susan Collins (R-Maine) was concerned about similarity between the Terrorist Threat Integration Center and the Counterterrorist Center, part of the CIA created in the mid-1980s to collect and analyze terrorism information.

"Collins said she is concerned that the two centers would duplicate each other. Collins and other members said they didn't want to create another layer of intelligence analysts, further complicating the center's purpose." ⁶

In March, 2003 the CIA announced that its deputy executive director, John Brennan, would lead the TTIC from the CIA's side, but as late as April 23, 2003, one week before the TTIC was to begin operation, the FBI had not nominated a counterpart from its side. Bobby Brady, the CIA's deputy chief information officer, voiced his organization's displeasure.

"We don't agree with the FBI's decision to do this and reject the notion that this should be a CIA-run organization," "We don't believe it should just be the CIA because the CIA is just too vulnerable, and there would not be enough involvement from the FBI and other agencies."

Brady said he planned to meet with FBI officials "to pressure the FBI to name its leader for the TTIC".

"The FBI doesn't have to provide someone who is an [information technology] expert or anything like that," Brady said, "All we need is someone who understands how the FBI runs and can help out in getting this organization off the ground."

On April 14, 2004, less than 15 months after the announcement of the plan to establish the TTIC, its Director, John Brennan, testified about the capabilities that were already developed.

"[The TTIC] allows intelligence officials from several federal agencies to share threat information using integrated databases and comprehensive search tools." ... "Analysts at TTIC have direct access to 14 government networks, and officials plan to connect an additional 10 networks." .. "During the next year, officials will build the technology infrastructure for faster search capabilities."

"A key objective of TTIC is to develop an integrated information technology architecture so that sophisticated analytical tools and search capabilities can be applied to the many Terabytes of data available to the federal government," Brennan said. "We need to create new knowledge from existing information."

⁵ Michael, Sara. "Threat center raises questions, concerns," *Federal Computer Week*. Feb. 26, 2003, online at http://www.fcw.com/fcw/articles/2003/0224/web-ttic-02-26-03.asp

⁷ French, Matthew, "CIA, FBI wrangle over threat center," *Federal Computer Week, April 23, 2003,* online at http://www.fcw.com/fcw/articles/2003/0421/web-ciafbi-04-23-03.asp
Bibid.

Michael, Sara. "Feds praise TTIC," Federal Computer Week. Online at http://www.fcw.com/fcw/articles/2004/0412/web-ttic-04-14-04.asp

III. PUBLICATION OF PATTERNS OF GLOBAL TERRORISM - 2003 ON APRIL 29, 2004

On April 29, 2004, the U.S. Department of State released the 22nd annual *Patterns of Global Terrorism* report.¹⁰ Annual publication of this report is required by law. The report has used a consistent definition of terrorism since 1983.¹¹

In releasing the report, Richard Armitage, Deputy Secretary of State provided comments including:

"Terrorism continues to destroy the lives of people all over the world; and this report we are releasing today, "Patterns of Global Terrorism: 2003," documents the sad toll that such attacks took last year. This report also details the steps the United States and some 92 other nations took in 2003 to fight back and to protect our peoples. Indeed, you will find in these pages clear evidence that we are prevailing in the fight." ¹²

The summary "Year in Review" section of Patterns of Global Terrorism – 2003 began:

"There were 190 acts of international terrorism in 2003, a slight decrease from the 198 attacks that occurred in 2002, and a drop of 45 percent from the level in 2001 of 346 attacks. The figure in 2003 represents the lowest annual total of international terrorist attacks since 1969.

A total of 307 persons were killed in the attacks of 2003, far fewer than the 725 killed during 2002. A total of 1,593 persons were wounded in the attacks that occurred in 2003, down from 2,013 persons wounded the year before. In 2003, the highest number of attacks (70) and the highest casualty count (159 persons dead and 951 wounded) occurred in Asia. There were 82 anti-US attacks in 2003, which is up slightly from the 77 attacks the previous year, and represents a 62-percent decrease from the 219 attacks recorded in 2001."

The report noted:

¹⁰ U.S. Department of State, *Patterns of Global Terrorism*, Released by the Office of the Coordinator for Counterterrorism, April 29, 2004. Online at http://www.state.gov/s/ct/rls/pgtrpt/2003/31569pf.htm. The full report in a revised version from June 22, 2004 is online at http://www.state.gov/s/ct/rls/pgtrpt/2003/

¹¹ Each year this report "is submitted in compliance with Title 22 of the United States Code, Section 2656f(a), which requires the Department of State to provide Congress a full and complete annual report on terrorism for those countries and groups meeting the criteria of Section (a)(1) and (2) of the Act. As required by legislation, the report includes detailed assessments of foreign countries where significant terrorist acts occurred and countries about which Congress was notified during the preceding five years pursuant to Section 6(j) of the Export Administration Act of 1979."

The definition of terrorism from previous Patterns of Global Terrorism reports applied to the 2003 report. "No one definition of terrorism has gained universal acceptance." [These reports use] the definition of terrorism contained in Title 22 of the United States Code, Section 2656f(d). That statute contains the following definitions:

- The term "terrorism" means premeditated, politically motivated violence perpetrated against noncombatant targets by subnational groups or clandestine agents, usually intended to influence an audience.
- The term "international terrorism" means terrorism involving citizens or the territory of more than one country.
- The term "terrorist group" means any group practicing, or that has significant subgroups that practice, international terrorism.

The US Government has employed this definition of terrorism for statistical and analytical purposes since 1983." (Source: U.S. Department of State, "Introduction," *Patterns of Global Terrorism – 2000*, April 30, 2001, online at http://www.state.gov/s/ct/rls/pgtrpt/2000/2419.htm)

¹² U.S. Department of State, "Release of the 2003 'Patterns of Global Terrorism' Annual Report," online at http://www.state.gov/s/d/rm/31961.htm



"Most of the attacks that have occurred during Operation Iraqi Freedom and Operation Enduring Freedom do not meet the longstanding US definition of international terrorism because they were directed at combatants, that is, US and Coalition forces on duty. Attacks against noncombatants, that is, civilians and military personnel who at the time of the incident were unarmed and/or not on duty, are judged as terrorist attacks."

IV. INITIAL CRITICISM OF PATTERNS OF GLOBAL TERRORISM - 2003

Contradicting the conclusions presented by Deputy Secretary of State Armitage, a May 17, 2004 article¹³ in the *Washington Post* by Professors Alan Krueger of Princeton and David Laitin of Stanford included the following points:

- The data in the report supported conclusions opposite from those drawn by Deputy Secretary Armitage. Instead of decreasing, "the number of significant terrorist attacks actually increased by 36 percent, from 124 in 2001 to 169 in 2003. The number of terrorist events has risen each year since 2001, and in 2003 reached its highest level in more than 20 years."
- The data highlighted in the report are "ill-defined and subject to manipulation," giving "disproportionate weight to the least important terrorist acts."
- The State Department would not identify the panel that determines whether an event is significant, nor would it say how insignificant events are counted. (An event "is judged significant if it results in loss of life or serious injury to persons" or "major property damage.")
- The report lists none of the serious terrorist events that occurred after Nov. 11, 2003.

On the same date, May 17, 2004, Henry Waxman, a Congressman from California, sent a letter¹⁴ to Colin Powell, U.S. Secretary of State. Its first paragraph stated:

"Last month, the Department of State released its annual Patterns of Global Terrorism report, announcing that international terror was on the decline in 2003. It appears, however, that the decline in terrorism reported by the State Department results from manipulation of the data, not an actual decline in terrorism incidents. This manipulation may serve the Administration's political interests, but it calls into serious doubt the integrity of the report."

Waxman's letter cited analysis by Professors Krueger and Laitin and mentioned errors, questions of interpretation, and lack of cooperation in validating the reported conclusions:

"A close review of the document reveals that the list of significant incidents stops on November 11. This is not because terror stopped for the last seven weeks of the year. In fact, there were multiple international terror attacks after that date – including the deadly bombings of two synagogues, a bank, and a British consulate in Turkey. A State Department representative told my staff that the list was cut off due to a printing deadline."

The State Department's claim that terrorism is on the decline is based solely on a steep decrease in the number of 'non-significant' terror attacks since 2001. According to the data in the report, these attacks have declined more than 90% in two years. But the

¹³ Krueger, Alan B. and David Laitin, "Faulty Terror Report Card," Washington Post, May 17, 2004, p. A21. Online at http://www.washingtonpost.com/wp-dyn/articles/A31971-2004May16.html

¹⁴ Waxman, Henry, Letter to Colin Powell, U.S. Secretary of State, dated May 17, 2004. Online at http://www.fas.org/irp/congress/2004 cr/waxman051704.pdf

report does not provide any explanation for how or why this drastic decline in nonsignificant attacks has occurred.

In an effort to understand why the State Department reported that nonsignificant terrorism attacks dropped from 231 in 2001 to less than 21 in 2003, my staff asked for a list of the nonsignificant attacks. The Department, however, refused to disclose either the list of total attacks or the process by which these attacks are selected for inclusion in the list. This leads to the bizarre conclusion that each significant terror attack is detailed in a public report, but information regarding the nonsignificant attacks is withheld from Congress."

..."Simply put, it is deplorable that the State Department report would claim that terrorism attacks are decreasing when in fact significant terrorist activity is at a 20-year high."

Waxman's letter concluded with a request that by June 1 the State Department should provide detailed listings of all international terrorist attacks since 1995, should identify the members of the U.S. Government Incident Review Panel, and should explain "the procedures for defining an act as an international terrorist attack and whether those procedures have changed in recent years."

V. INITIAL RESPONSES

The reported errors in *Patterns of Global Terrorism* – 2003 were a serious embarrassment for the Administration and for Colin Powell in particular. Here are excerpts from a number of initial responses, including a report by the Congressional Reporting Service¹⁵, a statement from the State Department, and several news articles from media across the political spectrum:

"The Department of State's Patterns of Global Terrorism Report: Trends, State Sponsors, and Related Issues," Congressional Research Service report by Raphael Perl, dated June 1, 2004.

"This report highlights trends and data found in the State Department's annual *Patterns* of *Global Terrorism* report, (*Patterns 2003*) and addresses selected issues relating to its content."

"Notably, the report defines terrorist acts as incidents directed against noncombatants. Thus, attacks in Iraq on military targets are not included."

"Patterns, a work widely perceived as a standard, authoritative reference tool on terrorist activity, trends, and groups, has been subject to periodic criticism that it is unduly influenced by domestic, other foreign policy, political and economic considerations."

"This year for the first time, data contained in *Patterns* — which some critics in Congress view as incomplete if not flawed — was provided by the newly operational Terrorist Threat Integration Center (TTIC). TTIC is providing an errata sheet, which will include, among other information, data on terrorist attacks after November 11, 2003."

"Some critics of *Patterns* and its designation of state sponsors of terrorism charge that the *Patterns* 2003 report generally, and specifically its reporting of activities of nations, is unduly influenced by a complex web of overlapping and sometimes competing political and economic agendas and concerns."

¹⁶ Perl, Raphael. "The Department of State's Patterns of Global Terrorism Report: Trends, State Sponsors, and Related Issues," *Congressional Research Service* Order Code RL32417, June 1, 2004. Online at http://fpc.state.gov/documents/organization/33630.pdf



¹⁵ "The Congressional Research Service is the public policy research arm of the United States Congress. As a legislative branch agency within the Library of Congress, CRS works exclusively and directly for Members of Congress, their Committees and staff on a confidential, nonpartisan basis." Source: "About CRS," http://www.loc.gov/crsinfo/whatscrs.html#hismiss

"Particularly strong have been suggestions by some that *Patterns* plays down undesirable levels of counter-terrorism cooperation and progress in the case of nations seen as vital to the global campaign against terror. *Patterns 2003*, in contrast to pre "9/11" report versions, is silent about Pakistan's alleged ongoing support for Kashmiri militants and their attacks against the population of India."

"In light of the high level of international attention attached to the report and the increased complexity and danger posed by the terrorist threat, some observers have suggested that a thorough Executive/Congressional review of *Patterns*, its structure and content, may be timely and warranted."

"Terror attacks undercounted," by Josh Meyer, Los Angeles Times, June 9, 2004.

"The State Department is scrambling to revise its annual report on global terrorism to acknowledge that it understated the number of deadly attacks in 2003, amid charges that the document is inaccurate, dangerously outmoded and politically manipulated by the Bush administration."

"Several State Department officials vehemently denied that their report was swayed by politics. One senior official characterized the errors as clerical, and blamed them mostly on the fact that responsibility for the report recently shifted from the CIA to the administration's new Terrorist Threat Integration Center."

"Correction to Global Patterns of Terrorism Will be Issued," a press statement issued on June 10, 2004 by Richard Boucher, spokesman for the U.S. Department of State. The entire text is:

"After learning of possible discrepancies in the first week of May, the Department of State and the Terrorist Threat Integration Center initiated a review of the data published in the 2003 edition of "Patterns of Global Terrorism." A May 17th letter from Congressman Waxman added impetus to our efforts.

The data in the report was compiled by the Terrorist Threat Integration Center, which was established in January 2003 and includes elements from the CIA, FBI and Departments of Homeland Security and Defense. Based on our review, we have determined that the data in the report is incomplete and in some cases incorrect. Here at the Department of State, we did not check and verify the data sufficiently.

At our request, the Terrorist Threat Integration Center is revising the statistics for calendar year 2003. While we are still checking data for accuracy and completeness, we can say that our preliminary results indicate that the figures for the number of attacks and casualties will be up sharply from what was published. As soon as we are in a position to, we will issue corrected numbers, a revised analysis, and revisions to the report."

"State Dept.: Terror Report Incorrect," ¹⁹ an Associated Press article posted on Fox News Channel on June 10, 2004:

"The State Department acknowledged Thursday it was wrong in reporting terrorism declined worldwide last year. Instead, both the number of incidents and the toll in victims increased sharply, the department said. Statements by senior administration officials claiming success were based "on the facts as we had them at the time. The facts that we had were wrong," department spokesman Richard Boucher said."

¹⁷ Meyer, Josh, "Terror attacks undercounted," *Los Angeles Times*, June 9, 2004 online at http://www.sfgate.com/cgibin/article.cgi?file=/c/a/2004/06/09/MNGUG734ER1.DTL

¹⁸ U.S. Department of State. "Correction to Global Patterns of Terrorism Will be Issued," June 10, 2004. Online at http://www.state.gov/r/pa/prs/ps/2004/33433.htm

Fox News Channel, "State Dept.: Terror Report Incorrect," June 10, 2004, online at http://www.foxnews.com/story/0.2933.122403.00.html

"Secretary of State Colin Powell said Thursday the errors were partly the result of new data collection procedures. "I can assure you it had nothing to do with putting out anything but the most honest, accurate information we can," he said."

"State Dept. Concedes Error in Terror Data" by R. Jeffrey Smith in the Washington Post, June 10, 2004:

"Larry C. Johnson, a former CIA analyst and former deputy director of State's counterterrorism office ... "said the report also omitted from the list of significant acts of terrorism, for unknown reasons, the 13 terrorist attacks in Russia attributed to Chechens in 2003, which he said caused the deaths of 244 people. Although most significant attacks occurred in just two countries in 2002 -- Israel and India -- they occurred in 10 in 2003, Johnson said: Afghanistan, India, Indonesia, Iraq, Israel, Morocco, the Philippines, Saudi Arabia, Russia and Turkey.

"When you read the report, TTIC did not add [the data] properly. Even a third-grader could have found this," Johnson said. "The body counts in 2002 and 2003 were at the highest levels in history."

"Powell 'not a happy camper' about terror report,"²¹ posted on *CNN.com* on June 13, 2004 included the following:

"Secretary of State Colin Powell found himself regretting and backpedaling Sunday for the second time in a month as he acknowledged that an erroneous terror report was a mistake and insisted politics did not lead to the report's omissions."

"Powell said on NBC's "Meet the Press" that "the data that is within the report -- the actual number of incidents -- is wrong."

"Henry Waxman said the 2003 report did not include attacks that happened after the report's November 11 printing deadline. That deadline prevented the inclusion of the bombings of two synagogues, the British consulate and a bank in Istanbul later that month, among other attacks."

An article²² by the editor of the South Asia Intelligence Review in India, (which has had dangerous border disputes and military confrontations with Pakistan) noted:

"The Report speaks of a total of 190 incidents of terrorism globally, in which 307 persons were killed. ... [including] just 49 such incidents in [India], with a total of 99 fatalities .. in the State of Jammu & Kashmir. The reality is that in J&K alone, there were at least 477 attacks on civilians in year 2003, with a total of 658 civilian deaths recorded by the *South Asia Terrorism Portal* (SATP) from open source reports." ... [The Report describes Pakistan as] "among America's 'most important partners in the global coalition against terrorism'." ... "There is not a single negative reference to trends in terrorism in Pakistan."

²² Sahni, Ajai, "A Tale Told by an Idiot," *India Outlook.com,* June 17, 2004, online at http://www.bashmirherald.com/featuredarticle/pgt2003.html



²⁰ Smith, R. Jeffrey. "State Dept. Concedes Error in Terror Data," Washington Post, June 10, 2004, p. A17. Online at http://www.washingtonpost.com/wp-dyn/articles/A29664-2004Jun9.html

CNN.com, "Powell 'not a happy camper' about terror report," online at http://www.cnn.com/2004/US/06/13/powell.report

VI. PRESENTATION OF A REVISED PATTERNS OF GLOBAL TERRORISM - 2003 REPORT ON JUNE 22, 2004

On June 22, 2004, the U.S. Department of State released a corrected version of the Patterns of Global Terrorism report for 2003. The revised summary section entitled "Year in Review" began,

"There were 208 acts of international terrorism in 2003, a slight increase from the most recently published figure of 198 attacks in 2002, and a 42 percent drop from the level in 2001 of 355 attacks.

A total of 625 persons were killed in the attacks of 2003, fewer than the 725 killed during 2002. A total of 3646 persons were wounded in the attacks that occurred in 2003, a sharp increase from 2013 persons wounded the year before. This increase reflects the numerous indiscriminate attacks during 2003 on "soft targets," such as places of worship, hotels, and commercial districts, intended to produce mass casualties."

According to the published transcript of the presentation, ²⁴ Ambassador Cofer Black, Coordinator for Counterterrorism, began the presentation by saying,

"The 2003 Patterns of Global Terrorism was marred by significant errors. Over the past few weeks in particular, the past several days and nights, my staff here and John's at TTIC, and others in the U.S. Government counterterrorism community have conducted a comprehensive review of the figures in the 2003 Patterns report. We've revisited both the numbers themselves and the way we arrived at them. From the reexamination, we have concluded there were obvious problems with some of the numbers themselves. Events were left out. Some were mislabeled and counted in the wrong categories. Some events were counted twice and some portions of the year were omitted entirely.

I hope it goes without saying that we've already begun the process of improving the way we arrive at these numbers for future reports. The revised figures indicate that our earlier assessment was overly positive in some respects.

... I want to be very clear: We here in the Counterterrorism Office, and I personally, should have caught any errors that marred the Patterns draft before we published it. But I assure you and the American people that the errors in the Patterns report were honest mistakes, and certainly not deliberate deceptions as some have speculated, as I said, when the Patterns was released."

Ambassador Black summarized the revised results and then yielded the microphone to John Brennan, Director of the TTIC, who provided background about why the erroneous results occurred:

"Numerous factors contributed to the inaccurate information contained in the 2003 Patterns of Global Terrorism publication, TTIC provided incomplete statistics to CIA. which incorporated those statistics into material passed to the Department of State. The statistics were generated by a longstanding interagency review process and database over which TTIC assumed administrative control in May 2003. No changes were made to that process by TTIC and the same database was used to compile the statistics for the 2003 Patterns publication that was used in previous years.

²³ U.S. Department of State, Patterns of Global Terrorism," Released by the Bureau of Resource Management and the Office of the Coordinator for Counterterrorism, June 22, 2004. Online at http://www.state.gov/s/ct/rls/pgtrpt/2003/33771.htm.
²⁴ U.S. Department of State, "Remarks on the Release of the Revised Patterns of Global Terrorism 2003

Annual Report," June 22, 2004, online at http://www.state.gov/s/ct/rls/rm/2004/33801.htm

I must point out that this database is retrospective in focus and is not used to monitor, track or analyze current terrorist threats.

There was insufficient review and quality control throughout the entire data compilation, drafting and publication process, including the inaccurate and incomplete database numbers provided by TTIC. I assume personal responsibility for any shortcomings in TTIC's performance and I regret any embarrassment this issue has caused the Department or the Secretary.

Anyone who might assert that the numbers were intentionally skewed is mistaken. Over the past several weeks, TTIC personnel have conducted rigorous review of the database, computer technology, procedures, interagency process, methodology, criteria and definitions that have been used to compile international terrorism statistics over the past 20 years. This review has exposed serious deficiencies and ambiguities that need to be addressed immediately. As a result, I have directed that the interagency process that has been used to compile statistics and to support the Department in its annual *Patterns* publication be overhauled and that changes be made in the staffing, database and computer technology involved in this effort."

Brennan implied that performing the analysis for a retrospective annual report was not TTIC's top priority.

"To date, TTIC's technical and analytic focus has been on how we, as a government, can more effectively identify, integrate and correlate intelligence, law enforcement, homeland security and other terrorism-related information to prevent future terrorist attacks. While this focus will remain our number one priority, and we will allocate analytic and budget resources accordingly, we will put in place a system in conjunction with our partner agencies that will provide accurate and meaningful metrics on international terrorist events. The Department must have confidence that whatever information it receives from TTIC is accurate."

Brennan continued by responding to concerns that the method for coding the incidents as significant or non-significant was not applied consistently with previous reports

"I would now like to say a few words about the revised statistics, charts and chronologies that are being made available today. When it was brought to our attention that the information in *Patterns* was incorrect, TTIC staff conducted a thorough review of all reported terrorist incidents that took place in 2003. On the basis of that review, a total of 208 incidents were determined to meet the definition of international terrorism as articulated in Section 2656f of Title 22 of the U.S. Code. One hundred and seventy-five of these incidents met the threshold for Significant Incidents as defined by the Incident Review Panel, known as the IRP, which is an interagency panel established in the early 1980s consisting of representatives of CIA, the Defense Intelligence Agency, the National Security Agency and the Bureau of Intelligence and Research of the Department of State.

Since May of 2003, a member of TTIC has chaired this panel and has voted in cases of tie. The interagency Incident Review Panel is the body that makes the decisions on international terrorist incidents. In addition to the 176 Significant Incidents, TTIC staff identified another 33 incidents that were deemed Non-Significant, according to the definition established by the Incident Review Panel many years ago.

The definitions for Significant and Non-Significant International Terrorist Incidents are included in the material that is being provided today. These 208 total incidents, including the breakdown between Significant and Non-Significant, were then reviewed and validated at a special session of the Incident Review Panel that was convened last week.

One final point. Frequently, there is incomplete and often contradictory information available on reported terrorist events. Thus, it is up to the Incident Review Panel to make the best possible decisions on whether incidents meet the established definitions and thresholds, as well as to make informed judgments on the number of casualties involved. The materials being made available today reflect those decisions and judgments."

The reporters at the presentation followed with a lengthy series of questions and answers about a wide range of topics. The following excerpts were selected to emphasize questions and answers that directly or indirectly explain something about the systems that produced the initial report and the circumstances under which it was generated. Lines containing dashes indicate breaks in the chronology within the question and answer session.

QUESTION: I wonder if you gentlemen can tell me -- you've accepted responsibility now - is anybody going to be fired or disciplined or has anybody resigned as a result of this very embarrassing mistake that seems to have involved several people in systems and layers?

AMBASSADOR BLACK: Well, I think that we've got a lot of hardworking people doing a lot of different things. And we have been looking at the architecture, the process involved with this. We're going to look at the entire spectrum of how the information is stored, how it's put together both here at the State Department and particularly at the Terrorist Threat Integration Center

... And this was an error of commission, but it was one developed over a significant period of time. We're dealing with old equipment and how we store it, being able to extract information out of the computers. We've got to update our equipment. And I think we will be able to develop a product that's more meaningful.

... Obviously, no one would want this to happen. I want to leave you with the sense that these are very hardworking, well-intentioned people that do make mistakes. There is the omission in the chronology – but not in the narrative, but in the chronology, there is an omission from about the 11th of November onwards. And the vote of the Incident Review Panel was -- in the process of December -- should have been caught clearly. And we're still amazed it was not, but it was not. And not to make excuses, but the people in our shop as well as John's and in other agencies at that time were working around the clock, were not on holiday. We all missed Christmas and the holidays. We were looking at saving lives -- as you remember, the aviation threat -- we were addressing that and other issues.

.

QUESTION: Why were [the incidents in mid-November and December] not counted?

AMBASSADOR BLACK: A couple of issues here. One is that the initial request that came in at the end of December and early January of the statistics. The Incident Review Panel did not meet until the middle of January in order to review those incidents in the latter half of November and in the month of December. When those incidents were determined to be Significant or Non-Significant, they were input into the database. Now, this database is an exceptionally antiquated database. It has been in use for more than 10 years, one that TTIC inherited and one that we now understand exactly its flaws and its deficiencies.

When they were input and it was input through only two parts of this database, they didn't spill over then to the other side that would actually generate the statistics. They were still captured in the database. Therefore, when the statistics and the chronologies that were built from those statistics were provided to CIA, it only stopped -- it only provided those -- that information up to the 11th of November. And, therefore, when that information went

forward, as I said, there was inattention as far as the quality control and reviewing and seeing whether or not there was a complete statistical run at that time.

QUESTION: That doesn't explain the 8th of November attack in Saudi.

AMBASSADOR BLACK: Well, what I said was then we also -- TTIC staff did a thorough review of all the terrorist incidents that were reported in 2003. Some of those incidents were deemed to be not international terrorist incidents. When our staff went back and took a look at them, in fact, they did meet the threshold for international terrorism. So you will see many changes throughout the course of the year as far as incidents that were included in *Patterns* that had been taken out and new incidents that have been put in prior to November 11th. This is a result of a thorough and constant review over the last two weeks and the analysts involved have scrubbed all of this information and that is why the special Incident Review Panel was convened last week in order to validate that.

QUESTION: But, in plainer English, isn't the answer to that question that this was a computer error?

AMBASSADOR BLACK: It is a combination of things. There was a transition from CIA to TTIC. There was the individual who was responsible for this unit left the position in December and was not replaced, has not yet been replaced. It's a CIA officer who left. There were individual contractors who actually had the inputting responsibilities for the database. Contractors rotated. And so the individual who was in charge of those contractors who left and the contractors then mis-input the new information into the database. So it was a combination of things: inattention, personnel shortages and database that is awkward and is antiquated and needs to have very proficient input be made in order for to be sure that the numbers will spill then to the different categories that are being captured.

QUESTION: Excuse me, if I could follow up? Then the failure, apparently, was that once this flawed information went to the CIA, it was not properly vetted there? And, similarly, it then went to the State Department where it was also not properly, if at all, vetted? Is that what happened?

AMBASSADOR BLACK: I will leave it to CIA and State Department to talk about the review that was provided to that information.

QUESTION: Well, we don't have them or we don't have the CIA here. What's your understanding?

AMBASSADOR BLACK: My understanding is that the incomplete and inaccurate statistics that TTIC provided to CIA was then passed on to State Department in its same form.

- - - - - - - - - - -

QUESTION: Yes. Ambassador Black, aren't you even now, with the corrected numbers, understating the problem? You said that terrorism -- terrorist incidents are down from where they were in 2001. In fact, if you look at Significant events, which are the ones, by definition, that we care about -- this is where there are casualties --

AMBASSADOR BLACK: Have gone up.

QUESTION: -- have gone up and are at a 20-year high. Is it not right -- they're at a 20-year high with these new numbers?

AMBASSADOR BLACK: That is correct, in terms of the 175 figure.

الظ للاستشارات

QUESTION: A 20-year high. Why didn't you mention that? I mean, it's not in the report. You have this -- the spin seems to be here that we're in a situation where, yeah, it's up a little bit from last year but it's not as high as it was in 2001. But what matters, the Significant events, a 20-year high. That's a different story.

AMBASSADOR BLACK: I think you need -- well, what I'm trying to get to is, you know, one can emphasize various things. I think in my statement I've repeatedly said Significant events, and I pointed out 175, I said it is a high, that is true. You know, it is a high statistically. There are other, you know, there are other -- 168 is a reasonably close figure. You know, you can look at this and I guess it's like a Rorschach test. You know, you can see what you want.

QUESTION: -- which would seem to be the genesis of the errors? It seemed to me that you initially said that the information was correctly inputted into your antiquated database, then for some reason it was not totaled, and then later you said that it was incorrectly inputted.

MR. BRENNAN: No, I did not say it was correctly inputted. I said that there was information that was subsequently inputted into the database that was not generated then when the database was pulsed. So some of the information from November and December was, in fact, input. But, in fact, looking back over the entire year, including that period, there were some incidents that should have been deemed to be international terrorist events.

QUESTION: Okay. So it was put in, but it just wasn't counted right, then, once it was put in?

MR. BRENNAN: Once it goes into the database, it's another step, in fact, several steps based on this database system that requires the individuals to generate the statistics based on incidents and whether they are Significant, Non-Significant, and casualties, whatever. That extraction process did not work for a combination of database problems, individuals who were not sufficiently trained on that, apparently, and also that there was lack of management oversight there because of the individual who was in charge of that unit left.

QUESTION: Just to clarify, the initial failure was the computer and programming input problem that was described by Mr. Brennan, then there was an apparent lack of vetting by the CIA, although you have not said so explicitly. And then, was there also a failure at the State Department to vet the material as received from those sources before you put it out? And has that now changed? Can you describe -- can you just clarify that?

AMBASSADOR BLACK: We are in the process of changing that and looking at it. Clearly, since I am the one that recommend to the Secretary that this document be published, it is my responsibility that it be error-free. It was not.

We do rely upon the TTIC and the CIA to provide us accurate information. And you've heard from Mr. Brennan about the plans he is making, both in terms of technology and personnel, to do that. But we, in my office, have to do a better job of proofreading what we get, and we obviously didn't do a good enough job of that and we're going to make corrections to do that.

VII. PRESS ACCOUNTS OF THE EXPLANATION OF THE ERRORS

Many press accounts on or shortly after June 22, 2004 discussed the presentation of the revised report and the skeptical questioning of Director Brennan and Ambassador Black. The following excerpts from news accounts were selected because they express additional views of Brennan and Black's explanation of the errors or of the surrounding context. Numerous comments about the national political ramifications of the errors and the new results are not included below. Direct quotations from Brennan and Black are not included because they were presented above.

"State Department Report Shows Increase in Terrorism²⁵ by Steven Weisman of the New York Times included:

"With fewer than 150 employees, [the TTIC] is supposed to analyze threats reported overseas and domestically and figure out from where the next attacks may come."

"C.I.A. and State Department officials passed what they regarded as a tedious job of producing statistics for the annual report to the unit, which was understaffed and handicapped by turnover, old computers, software that did not work and other problems."

"But some officials said Tuesday that the statistics themselves are arbitrary, dictated by American law. For example, the report does not include attacks by citizens of a country against citizens of the same country, because these are not regarded as 'international" terrorism'."

"Data Were Wrong on Terror Deaths" by David Cloud of the Wall Street Journal included:

"Officials said the main reason for the inaccuracies was the failure to count several attacks last November and December. That happened, officials said, because the CIA supervisor who oversaw entry of terror statistics into a database, as well as several contractor employees, left their jobs around this time, officials said."

"Messrs. Powell and Black repeatedly declined yesterday to offer conclusions about what the corrected numbers showed about the progress of the terror war. Democrats seized on the corrected numbers, saying that they were part a trend in which administration officials ignored or played down evidence at odds with their portrayal of the terror war."

"New 2003 Data: 625 Terrorism Deaths, not 307"27 by Peter Slevin of the Washington Post included:

"Powell, reported by colleagues to be furious about the errors in this year's Patterns of Global Terrorism review, noted three times in a short statement Tuesday that Brennan's office reports to the CIA director."

"Powell pointed to 'computational and accounting errors.' He added: 'The American people can have confidence in what we are doing and what we have done'."

"Waxman said of Powell, 'I'm going to give him the benefit of the doubt that they're simply incompetent, but even that's distressing.' He called it shocking that the administration produced a 'basically useless' report on such a critical topic'."

"Updated Terror Report Shows Rise in Incidents,"28 an Associated Press article posted on Fox News on June 23, 2004:

²⁶ Cloud, David, "Data Were Wrong on Terror Deaths," *Wall Street Journal*, June 23, 2004, p. B2.

²⁷ Slevin, Peter."New 2003 Data: 625 Terrorism Deaths, Not 307," *Washington Post*, June 23, 2004, p. A01.



²⁵ Weisman, Steven R. "State Department Report Shows Increase in Terrorism," New York Times, June 23,

"J. Cofer Black, who heads the department's counterterrorism office, said the report, even as revised, showed "we have made significant progress" in the campaign against international terror."

"The corrected report shows that the Bush administration is "playing fast and loose with the truth when it comes to the war on terror," said Phil Singer, spokesman for Sen. John Kerry's presidential campaign. The administration "has now been caught trying to inflate its success on terrorism," he said."

"State Department Issues Revised Terrorism Report" by Mary Curtius of the Los Angeles Times included:

"Waxman said that in his telephone conversations with Powell, the secretary was 'outraged' that errors had found their way into the published report."

"Yeah, I don't like being picked off first base like that," [Powell] said. "But so far I haven't found malfeasance or any willingness to do wrong on the part of anyone. But we'll tighten up our procedures, but I haven't found anything here that I would say is deserving of firing, if that's the question,"

VIII. GOING FORWARD

As of the end of the case, Colin Powell is surely embarrassed by what happened and also upset that he had to spend his time dealing with errors in a retrospective annual report instead of devoting his energy to crises and important international issues around the world. Looking forward he and his senior staff might decide to fix the system for producing the report in its current form. Alternatively, they might conclude that in its current form and with its current definitions and restrictions the report is basically a bureaucratic exercise that fulfills a decades-old Congressional mandate but fails to reflect today's issues. Powell and his senior staff must deal with difficult national and international issues. Deciding what to do about annual Patterns of Global Terrorism report cannot be a major priority for them, but they still have to decide what to do.

QUESTIONS

- 1. Take an information system view of the production of the *Patterns of Global Terrorism* report. Review the case and summarize the system as follows:
 - a. Summarize the main steps in the business process
 - b. Identify the main participants in the system
 - c. Identify the information used and created by the system.
 - d. Identify the technology used by the system.
 - e. Identify the product produced by the system.
 - f. Identify different aspects of the surrounding organizational, political, and security environment that were relevant to the system.
- 2. The various sources in this case study provide a variety of explanations about how the errors occurred in the original (April 29, 2004) version of the report. Identify at least three different reasons that were cited and explain how the reasons are related to information systems and organizations.

⁹ Curtius, Mary. "State Department Issues Revised Terrorism Report," Los Angeles Times, June 25, 2004

Fox News Channel, "Updated Terror Report Shows Rise in Incidents," June 23, 2004, online at http://www.foxnews.com/story/0,2933,123386,00.html

- 3. To produce the *Patterns of Global Terrorism* report it is necessary to decide which incidents qualify as international terrorist incidents and then to classify each incident as significant or non-significant. How are these decisions made and how should they be made? Identify business situations in marketing, sales, human resource management, or other business functions in which the quality of important information depends on how well people put things in categories.
- 4. The corrected report is available at the URL in footnote #10. To what extent is it possible to consider the report a management information system? To whom is it addressed?
- 5. An important issue for managers is to assure that the information is used appropriately. Looking at the case, identify examples of using or misusing information. What might be done in the future to make sure information from the report is used appropriately?
- 6. Aside from minimizing errors, what might be done to make the report more valuable for purposes related to monitoring and management of issues related to terrorism? Start from one of two basic premises:
 - a. The U.S. Government should use its resources to continue publishing the report based on the long-standing definitions of terrorism and international terrorism.
 - b. The U.S. Government should produce a different report that more correctly reflects the current world situation regarding terrorism at local, national, and international levels.
- 7. Assume you have been hired to figure out how to make the production of the report more efficient. Based on the limited details about how the report is generated, identify some of your initial guesses about what, if anything, might be done more efficiently or more effectively.
- 8. Most companies use a variety of information systems for keeping track of internal operations, finances, employees, customers, and the marketplace. Going beyond the details of this case, identify some of the major themes and issues from this case that are also pertinent to corporate information systems.

Editor's Note: This case study, which was peer reviewed, was received on July 22, 2004 and was published on August 1, 2004.

ABOUT THE AUTHOR

Steven Alter is Professor of Information Systems at the University of San Francisco. He holds a B.S. in mathematics and Ph.D. in management science from MIT. He extended his 1975 Ph.D. thesis into one of the first books on decision support systems. After teaching at the University of Southern California he served for eight years as co-founder and Vice President of Consilium, a manufacturing software firm that went public in 1989 and was acquired by Applied Materials in 1998. His many roles at Consilium included starting departments for customer service, training, documentation, technical support, and product management. Upon returning to academia, he wrote an information systems textbook that is currently in its fourth edition, *Information Systems: Foundation of E-business*. His research for the last decade concerned developing systems analysis concepts and methods that can be used by typical business professionals and can support communication with IT professionals. His articles appear in *Harvard Business Review, Sloan Management Review, MIS Quarterly, Interfaces, Communications of the ACM, Communications of the AIS, CIO Insight, Futures, The Futurist, and many conference transactions.*

Copyright © 2004 by the Association for Information Systems. Permission to make digital or hard copies of all or part of this work for personal or classroom use is granted without fee provided that copies are not made or distributed for profit or commercial advantage and that copies bear this notice and full citation on the first page. Copyright for components of this work owned by others than the Association for Information Systems must be honored. Abstracting with credit is permitted. To copy otherwise, to republish, to post on servers, or to redistribute to lists requires prior specific permission and/or fee. Request permission to publish from: AIS Administrative Office, P.O. Box 2712 Atlanta, GA, 30301-2712 Attn: Reprints or via e-mail from ais@gsu.edu





ISSN: 1529-3181

EDITOR-IN-CHIEF

Paul Gray Claremont Graduate University

AIS SENIOR EDITORIAL BOARD

Detmar Straub	Paul Gray	Sirkka Jarvenpaa
Vice President Publications	Editor, CAIS	Editor, JAIS
Georgia State University	Claremont Graduate University	University of Texas at Austin
Edward A. Stohr	Blake Ives	Reagan Ramsower
Editor-at-Large	Editor, Electronic Publications	Editor, ISWorld Net
Stevens Inst. of Technology	University of Houston	Baylor University

CAIS ADVISORY BOARD

Gordon Davis	Ken Kraemer	M.Lynne Markus	Richard Mason
University of Minnesota	Univ. of Calif. at Irvine	Bentley College	Southern Methodist Univ.
Jay Nunamaker	Henk Sol	Ralph Sprague	Hugh J. Watson
University of Arizona	Delft University	University of Hawaii	University of Georgia

CAIS SENIOR EDITORS

Steve Alter	Chris Holland	Jaak Jurison	Jerry Luftman
U. of San Francisco	Manchester Bus. School	Fordham University	Stevens Inst.of Technology

CAIS EDITORIAL BOARD

Tung Bui	Fred Davis	Candace Deans	Donna Dufner
University of Hawaii	U.ofArkansas, Fayetteville	University of Richmond	U.of Nebraska -Omaha
Omar El Sawy	Ali Farhoomand	Jane Fedorowicz	Brent Gallupe
Univ. of Southern Calif.	University of Hong Kong	Bentley College	Queens University
Robert L. Glass	Sy Goodman	Joze Gricar	Ake Gronlund
Computing Trends	Ga. Inst. of Technology	University of Maribor	University of Umea,
Ruth Guthrie	Alan Hevner	Juhani livari	Munir Mandviwalla
California State Univ.	Univ. of South Florida	Univ. of Oulu	Temple University
Sal March	Don McCubbrey	Emannuel Monod	John Mooney
Vanderbilt University	University of Denver	University of Nantes	Pepperdine University
Michael Myers	Seev Neumann	Dan Power	Ram Ramesh
University of Auckland	Tel Aviv University	University of No. Iowa	SUNY-Bufallo
Maung Sein	Carol Saunders	Peter Seddon	Thompson Teo
Agder University College,	Univ. of Central Florida	University of Melbourne	National U. of Singapore
Doug Vogel	Rolf Wigand	Upkar Varshney	Vance Wilson
City Univ. of Hong Kong	U. of Arkansas, Little Rock	Georgia State Univ.	U.Wisconsin,Milwaukee
Peter Wolcott			
Univ. of Nebraska-Omaha			

DEPARTMENTS

Global Diffusion of the Internet.	Information Technology and Systems.
Editors: Peter Wolcott and Sy Goodman	Editors: Alan Hevner and Sal March
Papers in French	Information Systems and Healthcare
Editor: Emmanuel Monod	Editor: Vance Wilson

ADMINISTRATIVE PERSONNEL

Eph McLean	Samantha Spears	Reagan Ramsower	
AIS, Executive Director	Subscriptions Manager	Publisher, CAIS	
Georgia State University	Georgia State University	Baylor University	

