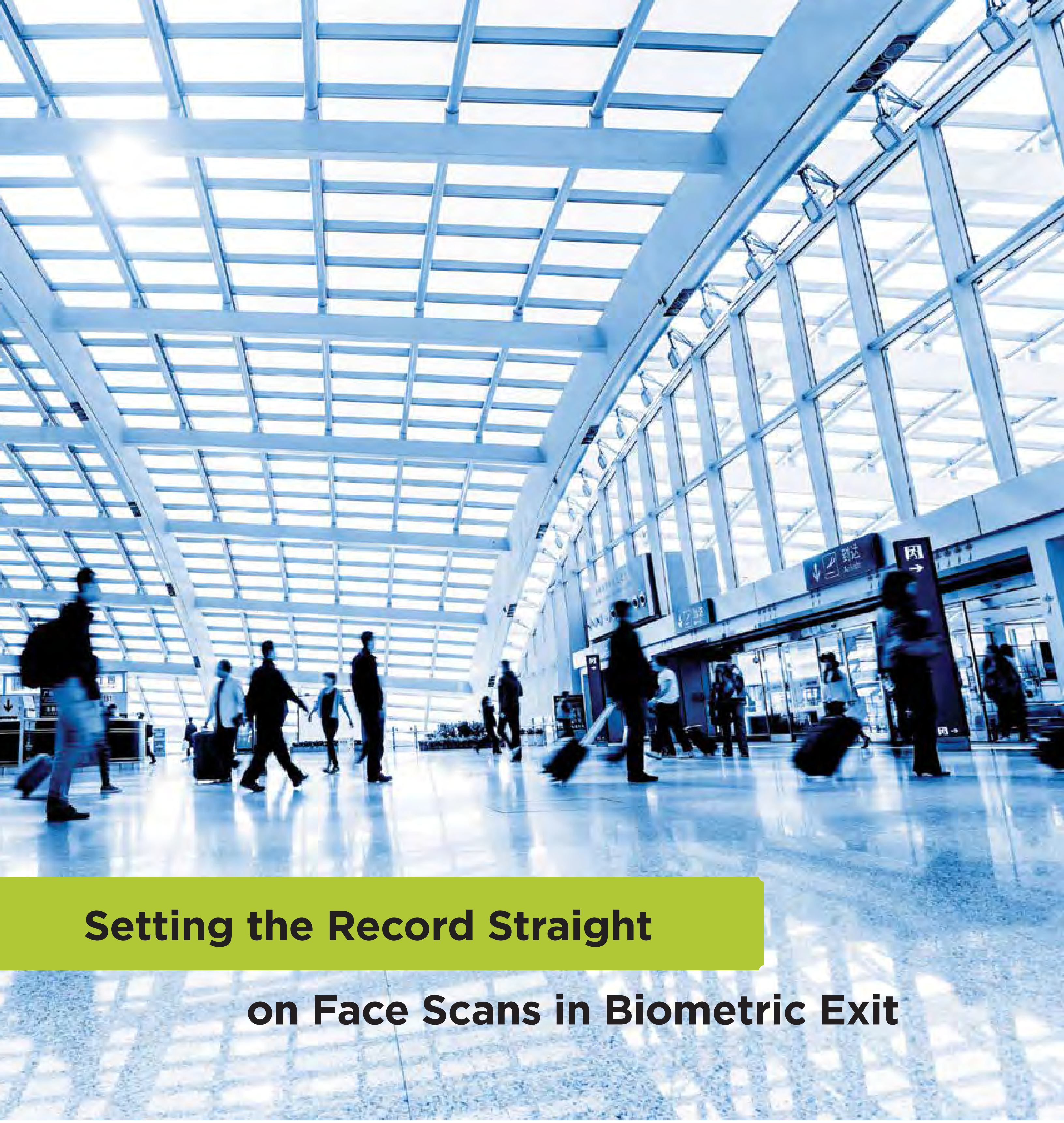

Setting the Record Straight on Face Scans in Biometric Exit

IBIA
International
Biometrics+Identity
Association

IBIA advances the adoption and responsible use of technology-based identification solutions to enhance identity security and privacy and to facilitate convenience and productivity for government, business and consumers.

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Setting the Record Straight on Face Scans in Biometric Exit

I. Executive Summary

On December 21, 2017, Georgetown University's Center on Privacy & Technology ("Center") released **"Not Ready for Takeoff: Face Scans at Airport Departure Gates"**, a position paper ("Paper") on the Department of Homeland Security's Biometric Exit pilot projects currently underway at select international airports.*

Although the Paper highlights important areas of public interest that deserve rigorous discussion, the International Biometrics + Identity Association (IBIA) has identified significant flaws and omissions in the Paper. Based on factually incorrect and misleading statements as well as hypothetical arguments, the authors conclude that "Biometric Exit is a solution in search of a problem" (page 5) and "DHS should suspend all airport face scans" (page 16), essentially putting a halt to the Biometric Exit pilots.

It is disappointing that this important topic has not been analyzed as thoroughly as it deserves and as we have come to expect from Georgetown, a noted academic institution. These shortfalls could easily have been addressed by reaching out to experts and involved stakeholders.

However, the Center did not contact the IBIA (the leading Washington, DC-based trade association representing the global leaders in biometric technology) or industry stakeholders to confirm the accuracy and completeness of the technical issues and processes addressed. The Center also did not give Customs and Border Protection (CBP) a serious chance to provide input on the Paper during the drafting process; the Center sent the paper to CBP as a finished product 24 hours before releasing it.

Moreover, there is no indication that any other biometrics or identification subject matter experts were consulted. The Paper only gives the names of the authors, two (2) Center advisors and the Center's resident expert, all of whom are respected privacy attorneys but with no evident biometric expertise or government program experience. The Paper does not identify the names of their claimed expert reviewers, saying that *"the remainder of our expert reviewers will remain anonymous...."* (pages 18 and 19) This is unusual in academic circles where identifying peer reviewers is de rigueur. The Paper's approach is also inconsistent with the Center's own emphasis on transparency and implied academic thoroughness.

In the following analysis, IBIA will highlight the factual inaccuracies, key omissions, and the use of terminology that creates erroneous impressions, which underlie the Paper's incorrect findings and conclusions. In the course of doing this, we will demonstrate that the correct facts lead to a different set of conclusions. Specifically:

1. **Biometric Exit is essential for security and immigration.** The Paper's statement that Congress has not articulated a rationale for a Biometric Exit reflects a disregard of the facts on the ground in the U.S. and around the world. Security vulnerabilities are on the rise globally and the increase in visa overstays is documented. As a sovereign nation, the responsibility of the U.S. is to address these two (2) fundamental issues.

2. **The Biometric Exit pilots comply with Federal law.** Congress has adopted and enacted a mandatory Biometric Exit program that is clear U.S. government policy. It requires DHS to move forward with that policy and further rule making to adopt the policy already adopted by Congress makes no sense, mischaracterizes our constitutional system, and is not supported by the case cited. In addition, CBP already has authority to check who is entering and exiting the country. Biometric Exit automates part of that responsibility, which includes validating passports of U.S. citizens.

*The Center refers to Biometric Exit as a "program" throughout the Paper. This is misleading because there is currently no "program" - Biometric Exit is still in the pilot stage. Therefore, in our analysis, we refer to Biometric Exit "pilots."

3. **The Biometric Exit pilots are technically sound and the technologies are used worldwide.** As the studies and empirical evidence described in this analysis demonstrate, biometric verification of identity is more accurate and reliable than either simple biographic verification or human face verification. As discussed in great detail in the IBIA analysis, the Paper's citations to the NIST study makes clear that the authors cited it for incorrect conclusions. As a result, they misconstrued the 96% accuracy rate. Actual performance of modern algorithms against a gallery size equal to or slightly greater than a plane manifest is 98% to 99%.

4. **The Biometric Exit pilots are not mission creep toward government surveillance.** Matching passport photos to passengers is a normal and established authority. There is no direct mission-creep that could be construed as "surveillance".

5. **The Biometric Exit pilots will not increase private entities' access to sensitive data.** CBP subscribes to the Fair Information Practice Principles as detailed in their Privacy Impact Assessment (PIA) publications on the topic. No new data is generated by the process. DHS has maintained productive partnerships with airlines and government contractors for years - long before Biometric Exit came into being. The flow of personally identifiable information between these parties is well-defined in law and regulation, and has not yet resulted in a single documented compromise.

6. **The Biometric Exit process is designed to facilitate aircraft boarding.** As reflected in IATA's recent large public opinion survey, noted in IBIA's analysis, the traveling public has made clear that they strongly support the use of biometrics, along with other technologies, to facilitate air travel. In other words, people want security and facilitation. The DHS Biometric Exit pilots demonstrate that people appreciate the faster boarding process. In other countries with fully operational biometric operations in airports like Aruba, passenger flow is actually enhanced.

7. **Delays in implementing Biometric Exit are not due to the technology.** Notwithstanding the Paper's implications that technology weaknesses have delayed implementation, the real impedances have been in reconciling airport infrastructure needs, obtaining stakeholder buy-in, and funding. The technology has been proven, both internationally and in the early CBP pilots.

8. **The Biometric Exit system is not funded by taxpayers.** To-date, funding has been derived from increases in visa fees (borne by visa applicants) and public-private partnerships between CBP and airports and airlines, and not taxpayers.

II. Introduction

On December 21, 2017, Georgetown University's Center on Privacy & Technology ("Center") released "**Not Ready for Takeoff: Face Scans at Airport Departure Gates**", a position paper ("Paper") on the Department of Homeland Security's Biometric Exit pilot projects currently underway at select international airports. The Paper highlights several important areas of public interest that deserve rigorous discussion.

However, the International Biometrics + Identity Association (IBIA) has identified significant flaws and omissions in the paper's facts and arguments. Based on factually incorrect statements and hypothetical arguments, the authors conclude that "Biometric Exit is a solution in search of a problem" (page 5) and "DHS should suspend all airport face scans" (page 16), essentially putting a halt to the Biometric Exit pilots.

It is disappointing that this important topic has not been analyzed as thoroughly as it deserves. The Center did not reach out to technology experts or the stakeholders involved in the Biometric Exit pilots to discuss the technology and processes. Although they did provide Customs and Border Protection (CBP) with the Paper, they only did so 24 hours before distribution, too late for CBP to provide meaningful input. If the Center did receive any external feedback, the identities of those outside reviewers are not provided in the Paper.

III. IBIA Findings

In the following sections, IBIA will highlight the factual inaccuracies, key omissions, and the use of terminology that creates erroneous impressions, which underlie the Paper's incorrect findings and conclusions. In the course of doing this, we will demonstrate that the correct facts lead to a different set of conclusions. Specifically:

1. **Biometric Exit is essential for security and immigration**
2. **The Biometric Exit pilots comply with Federal law**
3. **The Biometric Exit pilots are technically sound and the technologies are used worldwide**
4. **The Biometric Exit pilots are not mission creep toward government surveillance**
5. **The Biometric Exit pilots will not increase private entities' access to sensitive data**
6. **The Biometric Exit process is designed to facilitate aircraft boarding**
7. **Delays in implementing Biometric Exit are not due to the technology**
8. **The Biometric Exit system is not funded by taxpayers**

1: Biometric Exit is essential for security and immigration

Biometric Exit solves two critical problems - security and immigration - which have been part of the public debate for over twenty years. The Center's Paper, however, minimizes both the security and immigration threats facing the country by ignoring real facts on the ground.

With respect to the security rationale for Biometric Exit, the Paper does not consider the high threat environment that exists in the U.S. and around the globe. In light of the large and obvious global security threats, it is surprising that the reality of global security vulnerabilities is not addressed.

With respect to immigration and visa overstays, which the Paper argues is the primary reason for a Biometric Exit, it simply states DHS has not provided any data showing that visa overstays constitute a problem, nor any evidence that Biometric Exit will help solve the problem.

This also is clearly incorrect. The vast majority of countries around the world have an outbound immigration process with passport and visa checking, which allows them to know with certainty who is in the country and who has already left, a fundamental responsibility of sovereign nations. The scope of the large number of visa overstays in the United States under the existing system has been documented by DHS.

Further, as discussed in detail below, there is extensive research as well as experience that provide the evidence that a Biometric Exit will be more accurate and effective than current visual or name-based systems.

Consider the following facts:

Background

- Congress first mandated the creation of a system to match arrival and departure information back in 1996 as part of the **Illegal Immigration Reform and Immigrant Responsibility Act.** That act required the Department of Justice (which held responsibility for immigration at the time) to implement an automated arrival and departure system.
- However, in the wake of the 9/11 terrorist attacks, the mandate was strengthened to include biometrics. The new mandate was reiterated three times by different Congresses:
    - The **Enhanced Border Security and Visa Entry Reform Act of 2002** (PL 107-173).
    - The **Intelligence Reform and Terrorism Prevention Act of 2004** (PL 108-458).
    - The **Implementing Recommendations of the 9/11 Commission Act of 2007** (PL 110-53 required the Department of Homeland Security ("DHS") to implement biometric exit controls that it is now doing.

Threat environment and global response

- With the **recognition** that the **terrorist threat level** now is severe and growing, the implementation of biometric border controls is accelerating around the world, not just in the U.S. This is driven by the proliferation of terrorist attacks as well as the growing numbers of refugees worldwide, dramatic increases in identity theft and forged documents, and increases in visa overstays. The biometric border systems deployed around the globe confirm identities at the borders to deter, detect, and interdict malicious actors, and to ensure that only authorized visitors are in the country.
- The Paper says virtually nothing about these global terrorist trends and the global response, the security needs of the country and many other countries around the world, and the need for new programs and technologies to properly secure the nation's borders.
- Recognizing the risk of unfettered travel by terrorists and other bad actors, the United Nations Security Council just adopted a **resolution** on December 21st, 2017, that called upon member nations to increase aviation security and collect biometric data from travelers. The resolution was cosponsored by 66 countries and passed the Security Council with unanimous support, including that of the United States.

> **"The Paper states that there is no reason to check people who are departing from the U.S. for security purposes. Bad actors can and do board planes in the U.S. and subsequently do great damage abroad. Furthermore, criminals can and do attempt flight to escape justice. In addition, people sometimes enter the U.S. illegally, but attempt to leave legally."**

- The International Criminal Police Organization (INTERPOL) held its inaugural Fingerprint and Face Symposium in December of 2017. Following the Symposium, **Secretary General Jürgen Stock stated** that in response "to threats posed by foreign terrorist fighters (FTFs), Interpol is working to increase the use of its biometrics database and capabilities to better track their movement."
- The Paper also makes the illogical statement that there is no reason to check people who are departing from the U.S. for security purposes. Bad actors can and do board planes in the U.S. and subsequently do great damage abroad. Furthermore, criminals can and do attempt flight to escape justice. In addition, people sometimes enter the U.S. illegally, but attempt to leave legally. CBP calls these people "EWIs" (pronounced "eewees") for "Entered Without Inspection". This means that they didn't register a biometric record prior to or upon entry into the U.S., and would therefore be caught as a "non-match" upon biometric exit. All this points to the importance of maintaining an effective system that allows the U.S. to know who is departing the country, as recognized and practiced globally.

Immigration and visa overstays

- DHS has produced reports on visa overstays for FY 15 and 16 and a report for FY 17 will come out in 2018. These provide evidence on the extensive scope of the overstay problem. In its **FY 16 report**, DHS calculated there was 739,478 visa overstays from air and sea ports of entry. Of those, DHS estimated that 628,799 remain in the country, while the remainder departed but stayed longer than they were allowed. These numbers, however, are merely estimates because without an adequate outbound immigration system in place it is not possible to know with certainty who is still remaining in the country or who has already left.
- Congress has held numerous hearings establishing the significance of the visa overstay issue and the need for biometric exit to address the problem. This was the subject of hearings held by the Homeland Security Committee's **Subcommittee on Border and Maritime Security** as well as the Senate Judiciary Committee's **Subcommittee on Border Security and Immigration.**
- The recent press release entitled **Departments of Homeland Security and Justice Release Data on Incarcerated Aliens-94 Percent of all Confirmed Aliens in DOJ Custody are Unlawfully Present** (DHS, Dec 21, 2017) provides evidence of the cost of not dealing with the visa overstay issue. On December 18, 2017, DHS and DOJ released the FY 2017 4th Quarter Alien Incarceration Report. The report found that more than one-in-five of all persons in Bureau of Prisons custody were foreign born, and that 94 percent of confirmed aliens in custody were unlawfully present, suggesting the high cost of incarcerating people who are here illegally.
- On January 16th, 2018, the Departments of Justice and Homeland Security jointly released a report entitled "**Three Out of Four Individuals Convicted of International Terrorism and Terrorism-Related Offenses Were Foreign-Born.**" The report underscores that foreign terrorist organizations continue to exploit weaknesses in our immigration system.

2: The Biometric Exit pilots comply with Federal law

Congress explicitly directed DHS to deploy a mandatory Biometric Exit program. It adopted and enacted the legislation that was signed by the President. Specifically, the Biometric Entry and Exit data system is required by **Section 7208 of the Intelligence Reform and Terrorism Prevention Act of 2004**. As such, it represents a clear U.S. government mandate and policy with the force of law.

The Paper's claim that DHS cannot proceed with its Biometric Exit pilots because a rule making is necessary "...before adopting big-impact new programs like mandatory biometric scans" (page 2) mischaracterizes our constitutional system, where **Congress, not the executive branch, makes the law**.

It is also not supported by either the one (1) court case it cites, **Electronic Privacy Information Center v. Department of Homeland Security** (EPIC v. DHS 2011), or the 2017 **Executive Order 13780** on Biometric Exit it cites, or **5 USC Section 553** that it also cites.

As discussed below, DHS can move forward with Biometric Exit without a DHS rule making, for the obvious reason that Congress has already adopted the mandatory Biometric Exit policy.

> **"The Paper's claim that DHS cannot proceed with its Biometric Exit pilots because a rule making is necessary "...before adopting big-impact new programs like mandatory biometric scans" mischaracterizes our constitutional system, where Congress, not the executive branch, makes the law."**

Consider the following facts:

Rule Making

- **The Implementing Recommendations of the 9/11 Commission Act of 2007** specifically mandates the use of biometrics on entry and departure for all visitors. It is an explicit government policy directive to DHS to proceed to implement the program.
- The EPIC v DHS citation does not support the Paper's argument that a rule making is required for DHS to proceed with its Biometric Exit pilots for the following reasons.
  - The only issue before the Court was whether TSA was required to undertake a rule making before fully deploying the AIT body scanner screening program.
  - The issue of requiring a rule making prior to proceeding with pilots was not before the Court, a previous complaint to stop the pilots having already been ignored.
  - The TSA AIT body scanner screening program at issue was fully deployed, and the Court decision dealt only with the question of whether TSA should have proceeded with a rule making with notice and comment prior to fully deploying the program.
  - The Court found that TSA was required to undertake a rule making prior to fully deploying program because, while the applicable legislation required TSA to deploy screening devices, it "...does not specifically require the TSA to deploy AIT scanners let alone to use them as primary screening." The Court noted the legislation outlined a number of potential screening technologies and processes for TSA to study and that list did not include AIT body scanning.
  - Therefore, EPIC v DHS **is not precedent** for immediately suspending all the Biometric Exit pilots on the ground that DHS has not undertaken a rule making.
  - In contrast, Congress explicitly requires DHS to implement a mandatory Biometric Exit program, a clear statement of government policy to use a particular technology, and therefore no rule making on the policy question is required before fully deploying the program.
- The Paper **misstates** the President's **Executive Order 13780** by claiming that it mandates a rule making.
  - The Executive Order does not mandate a rule making for undertaking the Biometric Exit pilot projects.
  - It states clearly only that DHS "... shall expedite the completion and implementation of a biometric entry exit tracking system ..." and provide progress reports.
  - The **DHS interim notice of a proposed rule**, also cited as evidence that DHS knew it was required to proceed with a rule making before moving forward with the Biometric Exit pilots, misstates that Notice as well; it relates to a rule making that DHS plans at such time as the Biometric Exit program is fully deployed, not to the pilot projects.
- **Title 5 of the USC, Section 553, Rule making**, is also not precedent in this case since it only sets out the procedures for notice and comment for rule making, in those instances when a rule making is required.

U.S. Citizens

- **Title 8 of the USC, Section 1185, Travel Control of Citizens and Aliens**, provides the Department of Homeland Security with **broad authority** to confirm the identities of all travelers, and section 1185 also applies to citizens. Pursuant to the provision, all travelers, U.S. and foreign, are required to have valid travel documents when traveling and CBP has authority to check all travel documents, by visual passport to face comparisons.
- The Biometric Exit pilots simply automate a process already being done, supported by statute, thereby saving costs, speeding processing, and enhancing accuracy, the normal path of progress.
- The inclusion of U.S. citizens in the implementation of the Biometric Exit pilots is highly important to deter claims of U.S. citizenship by imposters to bypass the checks. This is not speculation; it is reflected in the exponential increase in identity theft and, therefore, it is appropriate to consider this issue in the pilot stage.
- Further, during this pilot stage, CBP is **not mandating** participation of U.S. citizens and alternative procedures are available. This information is publicly available and signage is conspicuously displayed, despite statements to the contrary. DHS also published an associated **Privacy Impact Assessment (PIA) Update for the Traveler Verification Service** (TVS - an umbrella term for the whole biometric entry-exit process).
- Also of importance, DHS is **not retaining** the face images of U.S. citizens obtained upon exit. All such images are erased after 14 days.

3: The Biometric Exit pilots are technically sound and the technologies are used worldwide

DHS's technical approach to the Biometric Exit pilots has been thorough and exhaustive. After a detailed alternatives analysis followed by over two years of technical evaluation at a specially designed test facility, DHS concluded that facial recognition was the most cost-effective, accurate system to meet the policy requirements and constraints of a Biometric Exit system.

Current pilot projects are designed to take these conclusions into the field for an assessment based on operational realities. As this is the first time that facial recognition is being deployed for this use case at such a massive scale, both DHS and their industry partners are learning a lot about the ideal configurations and implementation methods for this technology. In short, the pilot projects are a work in progress, not a system that is being fully implemented.

The authors claim that the technology is flawed for a number of reasons that have little basis in fact

Consider the following facts about the technology:

- While it is true that biometrics are not perfect (that is, have a non-zero and variable statistical error rate), nothing in life is perfect, including other security mechanisms. The relevant issue is whether biometrics or face scans are better than the alternatives.
- Compared to visual inspections and name-based alternatives, biometrics and face scans are clearly superior.
    - Unlike other security methods, biometrics in general and face recognition technology specifically have been extensively studied via the work of **NIST**, which evaluates the performance from multiple perspective including the effects of image quality, ethnicity, age, ageing, using diverse databases containing up to millions of records. No other security capability, such as name matching, knowledge-based identity verification or license plate recognition, has been subjected to the same rigor of scientific investigation that facial recognition has, with results published in the public domain, peer-reviewed and verified in multiple production systems in the USA and abroad.
    - Measured accuracy of human visual passport inspection is notoriously low, determined by some to be in the range of 80% or less (for example, **Passport Officers' Errors in Face Matching**).
    - Biometrics is distinguished by its unique capability to expose a false biographic history or identity claim. Names and biographical data are subject to errors (whether innocent or intentional) such as misspellings and typos, changed names, and previous addresses. Hispanic, Portuguese, Asian and Middle Eastern names are particularly subject to data entry errors due to multiple valid spelling alternatives and variations in naming conventions.
    - A biographic name-based system may be able to verify the documents of individuals who overstayed visas. However, it cannot verify the identity of the person presenting those documents. Ironically, the increasingly sophisticated security features in modern documents have resulted in the increased use of legitimate documents by impostors - those who strongly resemble the individual pictured in a real document. Often these impostors can be detected only through biometrics.
    - In perhaps the only study of its kind, the Bureau of Justice Statistics commissioned a July 1999 study of **Interstate Identification Index Name Check Efficacy**. Then, as now, many private and government organizations wished to avoid the delays and expense of fingerprint based background checks compared to name based (more accurately biographical information including names, ages, addresses, and so forth)

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background checks. Independent subject matter experts, well versed in matters of criminal history, name based checks and fingerprint based checks conducted the study. Name based checks resulted in 11.7% false negatives and 5.5% false positives. That is almost 12% of persons with felony level arrests or convictions were missed while approaching 6% of persons with no criminal record whatever were incorrectly reported as having a criminal record. Almost nineteen years later there is no reason to believe the situation is different either for public source information or for government held records.

  - DHS spent years attempting to rationalize and systematize the biographic data it receives from the airlines, only to learn that its accuracy rate falls far short of operational requirements, indicating the need for a Biometric Exit system.

- It is correct that occasionally, innocent people will be pulled aside if there is a no-match in Biometric Exit. The situation will be resolved manually, and the passenger will move on. However, the higher accuracy of automated facial recognition, compared to visual inspection and name matching, is projected to result in fewer such incidents.
- The argument that face scans are not equally effective across diverse populations (minorities and women) is irrelevant to how it is used in the Exit pilots. The Exit pilots seek only to confirm a person's identity in a gallery comprised of a small group of known people who are in the flight manifest. Algorithm effectiveness over large population groups is not an issue for small galleries - like those associated with a plane flight.
- The Center cites the recent NIST report on the **Ongoing Face Recognition Vendor Test** (FRVT) as evidence that facial recognition is inaccurate or not ready for deployment. This is incorrect in at least four ways.
  - The Center cites an 11-16-2017 version of the NIST report, but this was superseded by a 12-14-2017 version. Although a minor issue, the Georgetown Paper is dated 12-21-2017, and it is surprising the authors were not aware.
  - In both versions of the NIST report, the cover page clearly states that it is for "verification" (1:1 matching) purposes. While the Exit Pilots purport to do "verification" of persons exiting the country (which they functionally do), they do this through a biometric "identification" (1:N search) across the small gallery of all images of passengers on the manifest. **CBP states that with a flight of 300 people, they can expect to have a gallery size of 1500** images because they typically have multiple images per person. The authors - and their unnamed experts - should have understood the difference between verification and identification.
  - In addition to using the NIST citation incorrectly for the point being made, the Paper cites "average false accept rates" of 9.4% to 27% to establish that face scans are not ready to be deployed. Using an average as a metric is clearly misleading and irrelevant to the real world of making decisions. The testing encompasses algorithms that perform very well (with very small error rates), and some that are unacceptably terrible (with very large error rates). Using an average skews the number high. Agencies and companies often use the NIST results to make purchasing decisions and they would not use an average as any kind of indicative metric. That makes no sense. They will likely only choose among the excellent performers - and indeed DHS has done so with prior NIST tests.
  - Whether citing NIST testing or CBP's minimum accuracy requirement, the Paper's implication that Biometric Exit facial recognition performs poorly is not reflective of actual experience. For instance, the Paper's statement that CBP would consistently miss 4% of travelers (1 in 25) is inaccurate and misleading. The Paper calculates this number based on the 96% true accept rate ("accuracy") that was the minimum CBP requirement in the pilots. However, in actual Pilot operation (not formally reported), observed true accept rates against a plane manifest gallery of images is 98% to 99%, even at a low false accept rate. Starting in February 2018, in the next round of FRVT tests, NIST will conduct identification tests against various galleries including a gallery of 1500 images comprised of 300 individuals using appropriately captured probe images. This will provide objective test results relevant to Biometric Exit. Ultimately, however, nothing can replace the actual field experience and results from the Pilots themselves.

> **“The Paper cites “average false accept rates” of 9.4% to 27% to establish that face scans are not ready to be deployed. Using an average as a metric is clearly misleading and irrelevant to the real world of making decisions… Agencies and companies… would not use an average as any kind of indicative metric. That makes no sense. They will likely only choose among the excellent performers – and indeed DHS has done so with prior NIST tests.”**

4: The Biometric Exit pilots are not mission creep toward government surveillance

The Biometric Exit pilots do not represent CBP mission creep, nor can they be used for government surveillance. Passport verification is routine and required for all travelers, domestic and foreign, upon entry to or exit from the U.S., and this is consistent with such processes in other countries around the world. Such processing is a normal responsibility for sovereign nations, and has never been considered surveillance. What automated facial matching upon exit does do is to increase assurance of the passport verification process, reduce the risk of subterfuge, and speed boarding.

The argument that we should not develop and implement new technologies because they might hypothetically be abused in the future is not constructive, nor is it reflective of the way a technologically advanced society makes progress. With many technical advancements, the issue is often not the technology, but rather how people perceive or use it. Technology applications can bring great benefits, but there is sometimes potential for abuse in projects that use the technology in innovative new ways. While we require our government to be transparent, it is also our responsibility as citizens to ensure that our government serves our democratically established needs and does not abuse the power we give it. The Biometric Exit process was indeed established and authorized through Congress, and is neither a surveillance program nor an abuse of power.

5. The Biometric Exit pilots will not increase private entities’ access to sensitive data

Given that DHS does not produce or retain any additional unique data, the argument of greater potential abuse simply makes no sense.

Consider the following facts:

- As cited earlier, DHS published a **Privacy Impact Assessment (PIA) for the Traveler Verification Service**, which includes the scope of the pilots. A key principle of the pilot projects is that DHS should adhere to the Fair Information Practice Principles (FIPPs) including the stipulation that they use personally identifiable information (e.g. biometrics) only for the purpose specified.
- The Biometric Exit pilot projects use the biometric data that is already in possession of DHS, i.e. biometrics and travel documents and records of all outbound foreign travelers; inbound travel documents and records and biometrics of foreign travelers; travel and passport data, including passport photographs, of U.S. citizens. No unique biometric data records are created in the process.
- DHS has maintained productive partnerships with the airlines and government contractors for years - long before Biometric Exit came into being. The flow of personally identifiable information between these parties is well-defined in law and regulation, and has not yet resulted in a single documented compromise. Airline and technology vendor participation explicitly prohibits personal data retention. The airline reservation data provided by passengers at the time of the reservation does not hold any biometric data. The policies and procedures currently in use are well-suited to the protection of traveler data within strictly documented legal and regulatory confines.

6. The Biometric Exit process is designed to facilitate aircraft boarding

The Biometric Exit has been developed in cooperation with all major aviation stakeholders, airports, airlines and technology providers to develop processes to reduce aircraft boarding times and to minimize delays. In fact, airlines and airports and around the world are already implementing biometric boarding procedures, with positive results.

There are **reports at Boston's Logan Airport**, even at this early stage in the Biometric Exit pilot, that the face scan trial is receiving a **positive response from passengers** who appreciate the extra convenience of being able to board the aircraft without presenting a boarding pass. In Australia, a **facial recognition trial at Brisbane Airport** has already resulted in "a 70 per cent reduction in processing times for boarding and check-in."

The **2017 Global Passenger Survey** (GPS) conducted by the International Air Transport Association (IATA) further confirms that travelers are ready to embrace biometrics in air travel. In this massive survey (IATA received over 10,000 responses from around the globe), 82% of travelers expressed a desire to use a digital passport on their smartphones for activities ranging from booking flights to passing through the airport. Among those respondents, "Biometric identification systems were the technology of choice with 64% favoring biometric identifiers as their preferred travel token."

7. Delays in implementing Biometric Exit are not due to the technology

It is often the case that modernization projects are impeded by factors more significant than the challenges of implementing the underlying technology. This has been the case with Biometric Exit, where the U.S. lags behind similar advancements in other parts of the world. There are three salient reasons for this:

- Airport infrastructure.
  - Unlike in the majority of foreign countries, U.S. international airports were not built with outbound immigration processing in mind, and domestic and international travelers comingle within the same terminal building in all but the largest airports (which may have dedicated international terminals). Therefore, retrofitting is necessary to accommodate outbound processing.
  - Current processes and infrastructure will not be able to sustain air travel viability with the projected increase in passenger numbers. According to the **World Airport Traffic Forecasts 2017-2040** by Airports Council International, world air traffic is growing at 4.9% per annum, expected to double by 2031. Developing regions of the world are simply building more airports, but that isn't a practical option in the U.S. U.S. emphasis to address the challenge is to modernize in place, making the existing infrastructure flow more passengers even as more diverse security threats must be mitigated. However, modernizing in-place can be difficult and disruptive, slowing progress and impacting all the stakeholders.

> **"The Biometric Exit pilot projects use the biometric data that is already in possession of DHS, i.e. biometrics and travel documents and records of all outbound foreign travelers; inbound travel documents and records and biometrics of foreign travelers; travel and passport data, including passport photographs, of U.S. citizens. No unique biometric data records are created in the process."**

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  - As a result, the focus now is public-private partnerships, stakeholder collaboration, and innovations in data sharing, process improvements, and technology upgrades to maintain the viability of air travel. DHS is committed to working with the Administration and all stakeholders to implement Biometric Exit, while CBP is now working in partnership with the air travel industry and TSA as they implement biometrics in their own modernization programs. Unlike some other countries where airports are controlled by a central authority so enhancements can be dictated, progress in the U.S. can only happen through engaged collaboration among a diverse set of stakeholders.
- Resistance from some stakeholders in the air travel industry. This was manifest by an initial reluctance to partner with DHS on Biometric Exit pilots and the longer-term program, and to accept new processes whose benefit they did not fully appreciate at that time. With early success of the Biometric Exit pilots, this resistance is waning.
- Funding. No taxpayer funding has been allocated. Absent a centrally funded program, progress is slowed because the individual partners (e.g. airlines, airports, CBP, TSA, FAA, industry associations, airport retailers) each have their own priorities, business cases, and funding sources which need to be coordinated and focused to common goals. This takes more time.

8: The Biometric Exit system is not funded by taxpayers

The Paper creates the misleading impression that Biometric Exit will impose a substantial burden on the taxpayers, with its projected cost of $1 billion, citing the **Consolidated Appropriations Act of 2016**.

However, a closer look at the Appropriations Act reveals that:

- Taxpayers are not picking up the tab because the $1 billion projection will be paid by an increase in L-1 and H-1B visa fees, with any surplus money returned to the Treasury.
- The $1 billion projection is over a 10-year period (2016 - 2025), not all at once as the Paper implies.

This funding mechanism, born of the immigration control imperative, ensures that Biometric Exit will keep Americans safer and provide a more convenient travel experience without contributing to the national debt or precipitating tax increases or cuts to other government programs. In addition, other stakeholders will, or are expected to, participate in the funding and implementation of the pilots and subsequent program.

IV. Conclusion: 'Not Ready for Takeoff': a political agenda in search of a rationale.

It is disappointing that this important topic has not been analyzed as thoroughly as it deserves and as we have come to expect from Georgetown, a noted academic institution. As detailed in this IBIA analysis, the Center's Paper contains misleading statements along with incomplete and inaccurate facts.

These shortfalls could easily have been addressed by reaching out to experts and involved stakeholders. However, the Center did not contact the IBIA (the leading Washington, DC-based trade association representing the global leaders in biometric technology) or industry stakeholders to confirm the accuracy and completeness of the technical issues and processes addressed. The Center also did not give CBP a serious chance to provide input on the Paper during the drafting process; it sent the paper to CBP as a finished product 24 hours before releasing it.

Moreover, there is no indication that any other biometrics or identification subject matter experts were consulted. The Paper only gives the names of the authors, two (2) Center advisors and the Center's resident expert, all of whom are respected privacy attorneys but with no evident biometric expertise or government program experience. The Paper does not identify the names of their claimed expert reviewers, saying that the "*the remainder of our expert reviewers will remain anonymous....*" (pages 18 and 19) This is unusual in academic circles where identifying peer reviewers is de rigueur. The Paper's approach is also inconsistent with the Center's own emphasis on transparency and implied academic thoroughness.

While the suggested wholesale dismissal of the Biometric Exit pilots and any subsequent program at this early pilot stage may be satisfying to the authors of the Paper in pursuit of what appears to be a political agenda, it is not a constructive solution to the fundamental security, travel facilitation, and immigration problems that the country faces. Working to understand the authorities, issues and **all the facts** to develop a viable solution would ultimately be a more positive contribution from the authors to the public understanding and discussion of these critical issues.

While there are a number of detailed items of concern in the Paper, the IBIA has focused on the most significant misrepresentations and welcomes a more detailed direct dialogue with Georgetown and the Center. In this brief analysis, the IBIA has provided detailed supporting evidence that refutes the Center's assertions, and can supply more substantiation upon request:

1. **Biometric Exit is essential for security and immigration.** The Paper's statement that Congress has not articulated a rationale for a Biometric Exit reflects a disregard of the facts on the ground in the U.S. and around the world. Security vulnerabilities are on the rise globally and the increase in visa overstays is documented. As a sovereign nation, the responsibility of the U.S. is to address these two (2) fundamental issues.

2. **The Biometric Exit pilots comply with Federal law.** Congress has adopted and enacted a mandatory Biometric Exit program that is clear U.S. government policy. It requires DHS to move forward with that policy. Further rule making to adopt the policy already adopted by Congress makes no sense, mischaracterizes our constitutional system, and is not supported by the case cited. In addition, CBP already has authority to check who is entering and exiting the country. Biometric Exit automates part of that responsibility, which includes validating passports of U.S. citizens.

3. **The Biometric Exit pilots are technically sound and the technologies are used worldwide.** As the studies and empirical evidence described in this analysis demonstrate, biometric verification of identity is more accurate and reliable than either simple biographic verification or human face verification. As discussed in great detail in the IBIA analysis, the Paper's citations to the NIST study makes clear that the authors did not understand it and cited it for incorrect conclusions. As a result, they misconstrued the 96% accuracy rate. Actual performance of modern algorithms against a gallery size equal to or slightly greater than a plane manifest is 98% to 99%.

4. **The Biometric Exit pilots are not mission creep toward government surveillance.** Matching passport photos to passengers is a normal and established authority. There is no direct mission-creep that could be construed as "surveillance".

5. **The Biometric Exit pilots will not increase private entities' access to sensitive data.** CBP subscribes to the Fair Information Practice Principles as detailed in their Privacy Impact Assessment (PIA) publications on the topic. No new data is generated by the process. DHS has maintained productive partnerships with airlines and government contractors for years - long before Biometric Exit came into being. The flow of personally identifiable information between these parties is well-defined in law and regulation, and has not yet resulted in a single documented compromise.

6. **The Biometric Exit process is designed to facilitate aircraft boarding.** As reflected in IATA's recent and large public opinion survey, noted in IBIA's analysis, the traveling public has made clear that they strongly support the use of biometrics, along with other technologies, to facilitate air travel. In other words, people want security and facilitation. The DHS Biometric Exit pilots demonstrate that people appreciate the faster boarding process. In other countries with fully operational biometric operations in airports like Aruba, passenger flow is actually enhanced.

7. **Delays in implementing Biometric Exit are not due to the technology.** Notwithstanding the Paper's implications that technology weaknesses have delayed implementation, the real impedances have been in reconciling airport infrastructure needs, obtaining stakeholder buy-in, and funding. The technology has been proven, both internationally and in the early CBP pilots.

8. **The Biometric Exit system is not funded by taxpayers.** To-date, funding has been derived from increases in visa fees (borne by visa applicants) and public-private partnerships between CBP and airports and airlines, and not taxpayers.

Biometric Exit will keep Americans safer and provide a more convenient travel experience without contributing to the national debt or precipitating tax increases or cuts to other government programs.

Identity Matters

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