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# The Consequences of Edward Snowden NSA Related Information Disclosures

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**Abstract:** In June 2013, the Guardian newspaper started to disclose thousands of classified documents, which uncovered the existence of several mass surveillance programmes run by the National Security Agency (NSA) in the USA in cooperation with several European countries. These disclosures exposed a massive NSA clandestine electronic surveillance data program called PRISM as well as evidence of secret treaties amongst countries sharing surveillance data. The Guardian source was a NSA contractor, Edward Snowden, who was based in Hawaii. Edward Snowden is currently avoiding arrest after he initially fled to Hong Kong and then Russia. The leaks directly influenced US international relations in a negative manner, such as Brazil cancelling a state visit and Ecuador renouncing US trade benefits. The leaks had a financial impact on some of the massive US based IT companies; especially those who specialise in cloud based computing. Persons, companies and nations were affected by the leaks. Some secure email providers had to close down due to NSA and other government pressures to reveal their secret keys. The current estimation is that the US will lose between \$25 billion to \$35 billion in cloud computing based revenue due to Snowden's leaks. The trust in US based security professionals was also degraded after it was revealed that the NSA has pushed for flawed security standards. This will impact the status and US based security professionals in the future. In this paper we present a timeline of the Snowden related leaks, and discuss the reactions to these disclosures. We also explore the direct and indirect impact of these leaks. The consequences of these disclosures include strained foreign relationships, and the knowledge that mass surveillance programmes exists.

**Keywords:** Edward Snowden, information disclosures

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## 1. Introduction

The goal of this paper is to present an overview of the consequences and effects of Edward Snowden's disclosures relating to the NSA surveillance projects. In Section 2, we present the timeline of events. In Section 3, we briefly discuss the reactions of the major players, including nation states and commercial entities. In Sections 4 and 5 we provide a brief overview of the direct consequences and speculation on future consequences regarding the disclosures. Section 6 concludes this paper.

## 2. Timeline

The goal of this paper is to present an overview of the consequences and effects of Edward Snowden's disclosures relating to the NSA surveillance projects.

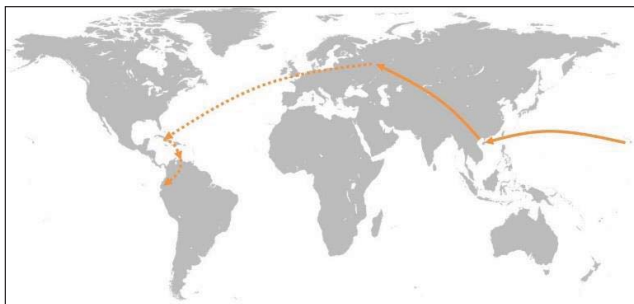


**Figure 1:** Edward Snowden - picture: The Guardian (The Guardian)

The timeline for the events relating to Edward Snowden's disclosures is presented. The timeline was derived from various media houses, including Al Jazeera, The Guardian, Associated Press, ZDNet, BBC and CBC News:

### *Suné von Solms and Renier van Heerden*

- 2013, May 20: Edward Snowden arrives in Hong Kong (Special Administrative Region of the People's Republic of China). Before this date he was working for US defence contractor Booz Allen Hamilton at the National Security Agency based in Hawaii,
- 2013, June 6-9: After a week of interviewing Snowden, a British newspaper, The Guardian, and the US based paper, The Washington Post, start reporting on how the NSA is amassing the telephone records. A program called "PRISM" collects data from Google and Facebook.
- 2013, June 9: Edward Snowden is named as the source of the newspaper leaks and publicly speaks for the first time stating: "I have no intention of hiding who I am because I know I have done nothing wrong."
- 2013, June 22: The US government charged Edward Snowden with theft, espionage and endangering the security of the US. Authorities in Hong Kong are asked for his extraction to US.
- 2013, June 23: Snowden leaves for South America via Moscow. He is denied access to his second flight from Moscow and is stuck in transit zone in Moscow Airport.
- 2013, July 3: The Bolivian President Evo Morales's plane was forced to land in Austria because it was suspected that Snowden was aboard.
- 2013, July 6: Venezuela, Nicaragua and possibly Bolivia offer Snowden asylum.
- 2013, August 1: Russia grants Snowden temporary asylum with the condition that no further harm is done to US interests.



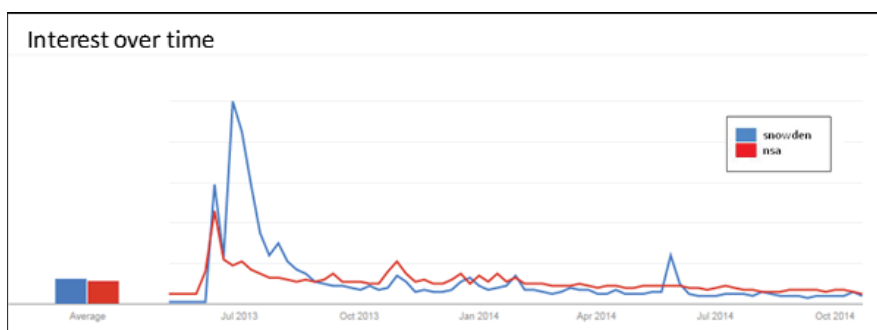
**Figure 2:** Snowden's travels after disclosures

- 2013, October 24: The EU Parliament votes to suspend the sharing of financial data with the US, following the Snowden relations.
- 2013, November 4: Edward Snowden publishes a "Manifesto for the Truth" in which he reflects on the consequences of the information released.
- 2013, November 30: The Safe Harbour agreement between the Europe Union and US, which governs the transatlantic transfer of personal data for commercial purposes, was called into question. The EU has called for action in six areas to restore trust in the Safe Harbour agreement. These include 13 recommendations for fixing issues. A further review is also planned.
- 2013, December 13: A federal judge (US) ruled that the NSA's phone surveillance program is likely unconstitutional.
- 2013, December 28: USA Today names Edward Snowden its person of the year (Shinal, 2013).
- 2014, January 16: The NSA is shown to collect millions of cell phone text messages each day from people who are not being investigated for any crime or criminal/terrorist association.
- 2014, February 13: A civilian NSA employee recently resigned and was stripped of his security clearance for enabling Snowden to use his personal credentials to access classified information.
- 2014, March 09: Snowden states that he reported the NSA abuses to 10 officials. None of these officials took any actions, which led him to take to whistle-blowing.
- 2014, March 15: Microsoft founder Bill Gates considers a traitor, whereas Steve Wozniak (Apple co-founder) considers Snowden a hero (Goodell, 2014).
- 2014, March 18: The Washington Post reveals that the NSA has the ability to record 100% of all foreign based telephone calls into the US, and that these calls are stored for 30 days.

- 2014, April 14: The Washington Post won 2 Pulitzer Prizes, including a public service medal for the exposure the NSA's global surveillance programs.
- 2014 August 1: Snowden has been given a three-year extension on his asylum in Russia (Reisinger, 2014).
- 2014 September 11: The U.S. government threatened to fine Yahoo \$250,000 a day in 2008 if it failed to comply with a broad demand to hand over user communications, a request the company believed was unconstitutional (Timberg, 2014).
- 2014 September 14: According to top-secret documents from the NSA and the British agency GCHQ, the intelligence agencies are seeking to map the entire Internet. In pursuing that goal, they have broken into networks belonging to Deutsche Telekom (Müller-Maguhn et al, 2014).

### 3. Reactions to the disclosures

This section briefly discusses the strain placed on the US as well as their foreign relationships with various countries. This also includes reactions of several Technology Companies in the USA. The incidents discussed are only a small selection and many more exist which can be found in the Literature. Figure 3 shows a graph obtained from Google trends showing the search interest in Snowden and the NSA from June 2013 to October 2014.



**Figure 3:** Snowden and NSA trends

#### 3.1 United States

After Edward Snowden identified himself as the Guardian's source for the leaked top-secret documents regarding the NSA and its blanket surveillance programs, the public reaction was mixed. Some hailed Snowden as a whistle-blower and a hero, while others considered him a traitor.

A petition started on 9 June 2013 seeking the White House to offer Snowden "a full, free, and absolute pardon for any crimes he has committed or may have committed related to blowing the whistle on secret NSA surveillance programs" have reached over 150 000 signatures by May 2014 ([petitions.whitehouse.gov](http://petitions.whitehouse.gov) (2013)). In addition, Snowden received a nomination for the Nobel Peace Prize, nominated by two Norwegian politicians for "contributing to transparency and global stability by exposing a U.S. surveillance program" (Bloomberg News 2014).

In contrast, the US government condemned his actions and called for prosecution. Democratic Senator Dianne Feinstein stated that she does not see Snowden as a whistle-blower, but as a person who violated his oath to defend the Constitution and therefore committed an act of treason (Swanson 2013). The chairman of the House homeland security subcommittee, Peter King, called for Snowden's extradition from Hong Kong and that no country must grant him asylum due to the "extraordinary consequence to American intelligence" (Borger & Ackerman 2013). A senior Obama administration official said that the United States wants Hong Kong to extradite Edward Snowden and if Hong Kong does not act soon, it can complicate the bilateral agreements between the US and Hong Kong (Holl & Stewart 2013).

Referring the Russian government as Snowden was contained in the International transit Lounge in Moscow airport after leaving Hong Kong, Secretary of State John Kerry stated that it would be "very disappointing" if Snowden is not handed over to US authorities as requested. Kerry said that although the US and Russia does not have a standard extradition treaty, it is an acceptable request for Russia to expel Snowden to face charges in the US. Hours after the statement, Russian President Vladimir Putin confirmed that Snowden was at the Moscow

airport, but has not committed any crimes in Russia and will not be contained by Russian authorities, despite the warnings from the US government (Ross et al. 2013).

The Electronic Frontier Foundation (EFF), an international non-profit digital rights group based in the USA, along with a coalition of various organisations, has filed suit against the NSA. They are currently in a court battle with the NSA over the unconstitutionality of its mass surveillance plans (GamePolitics Staff 2014). The EFF stated that the Snowden disclosures were an incredible help to their case against the Obama administration challenging the "illegal and unconstitutional program of dragnet electronic surveillance" (RT 2013). The Partnership for Civil Justice Fund reacted positively to the Snowden disclosures stating that the American government tried to stop Americans from learning the truth by punishing whistleblowers. Wide support of Snowden has been shown, including former CIA analyst Ray McGovern who presented Snowden with a whistleblowers award (Allam 2014). An editorial in the Guardian called Snowden's disclosures an "act of courage" (Editorial 2014) and an editorial in the New York Times said Snowden "has done his country a great service" and must offer him a "plea bargain or some form of clemency that would allow him to return home (The Editorial Board 2014).

### **3.2 Europe**

Political leaders throughout Europe reacted to the Snowden disclosures. In the UK, Prime Minister David Cameron called on newspapers to stop publishing the leaked NSA files in order to avoid government action (Watt 2013). The British foreign minister, William Hague, stated that the Government Communication headquarters (GCHQ) gathered intelligence from phones and online sites, but that it must not concern individuals (The Andrew Marr Show 2013). Thereafter, the German government expressed concern over Britain's mass surveillance programme. The German government stressed the widespread concern and demanded to know to what extent German citizens have been targeted (The Andrew Marr Show 2013). In October 2013 information emerged that German Chancellor Angela Merkel's phone was tapped and that a listening station was operated from the US embassy in Germany. In a draft report released by the European Parliament on 23 December 2013, the committee presented the findings from a six month investigation regarding the inquiry into the NSA spying scandal and the implications it may have on European citizens. They stated that the fight against terrorism can never justify "untargeted, secret and sometimes illegal mass surveillance programs" (Sinico 2014), (Parliament, 2014). This report called on the US and EU authorities to halt mass surveillance programs as they feel it has the potential to severely effect freedom of the press, freedom of thought and freedom of speech as well as potential for abuse of information gathered against political adversaries (Parliament, 2014).

### **3.3 South American nations**

#### *3.3.1 Brazil*

The government of Brazil expressed its dissatisfaction after the Snowden disclosures showed that the NSA targeted president Dilma Rousseff and her top advisors Romero & Archibold (2013). She threatened to downgrade commercial ties with the US and cancel her state visit to the US unless she receives a public apology (Winter, 2013).

#### *3.3.2 Other South American countries*

On 2 July 2013, a plane carrying Bolivian President Evo Morales back to Bolivia from Russia was rerouted and forced to land in Austria. The plane was refused to cross French and Portuguese airspace after suspicion that Snowden might be on board. The Bolivian defence minister claimed that the US state department was behind the cancellation of flight plans and that it can be seen as a form of intimidation (Linton, 2013). This incident caused outrage under the South American nations calling it a "grave offence to their region", causing an emergency meeting of the Union of South American Nations to be held. The presidents from Uruguay, Argentina, Venezuela, Suriname, Ecuador and a representative from Brazil attended the meeting. President Cristina Fernandez de Kirchner of Argentina stated that this episode was a reminder of colonialism that was thought to be a thing of the past (Neuman & Smale, 2013). Nicolas Maduro of Venezuela and President Daniel Ortega of Nicaragua have offered Snowden asylum after the meeting, even though US is demanding his arrest (Wallis & Buitrago, 2013). Ecuadorian president Rafael Correa renounced US trade benefits after US Senator Robert Menendez urged Correa to deny Snowden asylum (Valencia & Ellsworth, 2013), (Maceda et al., 2014).

Ambassadors from Bolivia, Cuba, Ecuador, Nicaragua and Venezuela expressed concern over the incident to United Nations Secretary-General Ban Ki-moon which stated that it is important that these incidents must be prevented in future (United Nations News Service, 2013).

### **3.4 Commercial reactions to disclosures**

In addition to foreign ministers and presidents of various countries speaking out on the NSA's blanket surveillance programs, many US based technology companies reacted strongly to the reported allegations. A short summary is provided in this section.

#### *3.4.1 Lavabit*

On 8 August 2013 Lavabit, a secure email service was shut down by creator and owner Ladar Levison. Legally unable to disclose the reason for shutting down his company, Levison stated that he would rather shut down his company than "become complicit in crimes against the American people" (Phillips & Buchanan, 2013), (Levison, 2013). The records for the case were unsealed on 2 October 2013 confirming that Lavabit owner was served with a "pen register" and a "trap and trace device" order, which would enable the government to obtain the header information, IP address, date and time of each email sent using Lavabit. However, this information was encrypted by Lavabit and therefore useless. Thereafter Levison was served with a warrant for the SSL private key and a wiretap (Farivar, 2013) which would enable the American government to obtain access to Snowden's email account, but also the email accounts of all the Lavabit users. Levison refused to hand over the SSL keys, stating that handing over the SSL keys to the FBI would compromise the security of all the customers of Lavabit, thus allowing them to use service they believe to be secure, but indeed is not. Unwilling to compromise the privacy of more than 400 000 Lavabit account holders in order to track a single account, he suspended Lavabit when he handed over the SSL keys to the (Phillips & Buchanan, 2013), (Levison, 2013), (Farivar, 2013), (Copestake, 2014).

A court on April 16 2014 upheld a contempt of court ruling against Ladar Levison and his encrypted e-mail service provider, Lavabit. Lavabit was hindering the government's investigation into the NSA leaks surrounding Edward Snowden leaks (Silver, 2014).

#### *3.4.2 Google, Yahoo, Microsoft*

According to the documents released by Snowden, the NSA secretly intercepted data from millions of Google and Yahoo user accounts through tapping communication links that connect Yahoo and Google data centres (Gellman & Soltani, 2013), (Al Jazeera, 2013). The intercepted data included email metadata as well as text, audio and video content (Rushe et al., 2013).

David Drummond, the chief legal officer of Google expressed anger over the disclosures. He stated that Google was concerned over the possibility of snooping and that Google have extended encryption across more and more Google service platforms and links. Drummond stated that they did not provide any government access to their systems and that they are outraged at the efforts of the US government to intercept data from Google private networks (Al Jazeera, 2013), (Rushe et al., 2013). Figure 4 shows the slide 4 from an NSA presentation shows where the "Public Internet" and internal "Google Cloud" were hacked. Engineers from Google were heard to explode in profanity after seeing the drawing (Gellman & Soltani, 2013).

Yahoo stated that they have strict controls for the protection of their security and data centres and that they have not allowed access of these data centres to the NSA of any other government agency (Rushe et al., 2013).

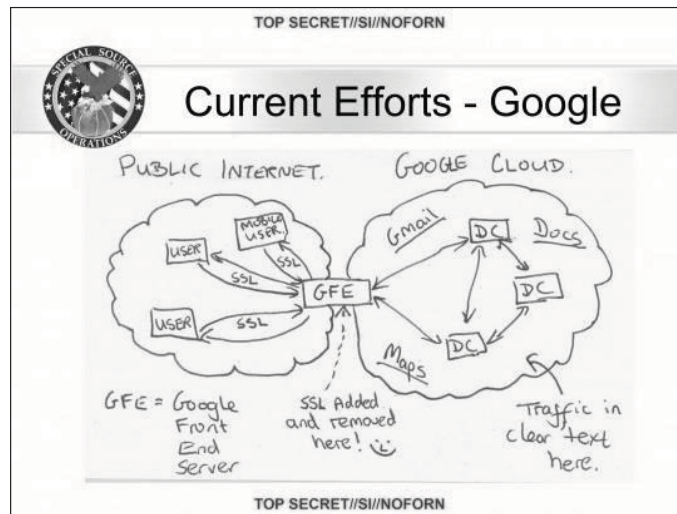


Figure 4: Slide from NSA presentation on “Google Cloud Exploitation (Gellman & Soltani, 2013)

### 3.4.3 NSA

At the TED conference in Vancouver in March 2014, Snowden gave a talk via video link to the conference attendees. He talked about his motivation for breaking his vows of secrecy and disclosing the secret documents. In response, NSA deputy director Richard Ledgett also joined the conference via video link stating that Snowden cannot be considered a whistle blower, as that statement hurts legitimate whistleblowing activities. Ledgett admitted that Snowden started a legitimate debate regarding people’s privacy and their expectation of privacy, but unnecessarily put millions of lives at risk (Lee, 2014).

In reply to the broad surveillance of the NSA on the general public, Ledgett replied strongly that data from citizens not related to terrorism or any other intelligence targets are not of interest to the NSA. He concluded that the NSA activities were legitimate as it were “authorized by two different presidents, from two different political parties, by Congress and by seven judges, 16 different times” (Walters, 2014).

### 3.4.4 RSA

RSA Security firm are advising its customers to stop using a crucial cryptography component in the products that were revealed to possibly contain a backdoor engineered by the NSA (Goodin, 2013). An advisory sent to various RSA customers on 19 September 2013 stated that products, by default, use the deliberately crippled pseudo random number generator, which is so damaged that it destabilises the security of cryptography systems that use it. It later emerged that RSA was paid \$10 million to use the flawed pseudorandom number generating algorithm as the default algorithm (Bright, 2013).

### 3.4.5 Security researchers

One leaked budget document stated that the NSA spends more than \$400 million on research and technology and hires between 30 and 40 mathematicians annually (Finkbeiner, 2013). There exist a large group of NSA-supported researches that accepts NSA funds for long term research projects in physical sciences, telecommunications and languages. On the other hand, some researchers refuse to accept research funding from the NSA.

Security researchers are also weary that the NSA spying is making it unsafe for American citizens. Security researcher Bruce Schneier stated that the NSA’s deliberate weakening of cryptographic algorithms, random number generators, encryption keys etc. is weakening Internet security for everyone. Schneier believes that these weaknesses can be exploited by everyone, not only the NSA. In response to RSA being implicated in NSA activities, the RSA sponsored security conference was boycotted by leading security experts (Gallagher, 2014).



## **4. Direct consequences**

This section provides an overview on the direct consequences of Snowden's disclosures. The consequences for Edward Snowden, the NSA, US foreign relationships as well as cloud based computing companies are included.

### **4.1 Edward Snowden**

After leaving Hong Kong and in transit at Moscow's Sheremetyevo International airport, the US revoked Snowden's passport, leaving him stranded in the International transit Lounge as law prevented Russia to allow Snowden to board an onward flight without a passport (Lawless, 2013). After 39 days at Moscow airport, Snowden was granted temporary asylum in Russia on 1 August 2013 for one year allowing him to live and travel in Russia (RT, 2013). Up to date, applications for political asylum to 27 different countries were made on Snowden's behalf (Free Snowden, 2013). It is reported that Venezuela and Nicaragua offered Snowden asylum and that Bolivia would also grant asylum to Snowden, if requested to do so (Watts & agencies, 2013).

Currently, Snowden states that he cannot return to the US as the US government's Whistleblower Protection Act does not apply to him, as he was working as a contractor for the government. His defence lawyer, Plato Cacheris, is in negotiations with the US in order for Snowden to return home. But this seems unlikely to happen soon, as Snowden seeks leniency due to the surveillance debate he has started, but US Prosecutors does not credit Snowden for the surveillance debate. It is stated that leniency would only depend on the documents still in Snowden's possession that is not yet disclosed and his willingness to return these documents (Savage & Apuzzo, 2014), (Botelho, 2014), (Kelley, 2014).

Sony Pictures is in the process of making a movie on the Snowden story Sony Acquires Movie Rights To Edward Snowden Book 'No Place To Hide' For James Bond Producers (2014). It will be based on Glenn Greenwald's upcoming book: "No Place To Hide: Edward Snowden, The NSA, And The U.S. Surveillance State".

### **4.2 NSA**

Due to the information disclosures, US President Barak Obama announced on 9 August 2013 that the intelligence community's surveillance programs must be reviewed in order to strike a balance between protection of Americans' safety and their privacy (Madhani & Jackson, 2013). On 17 January 2014, Obama presented a NSA reform plan to end the storage of phone call information. He presented a series of surveillance reforms on how the NSA is to conduct surveillance and intelligence gathering.

The reforms included that the government should no longer keep call records in the US as it has "potential for abuse" (Ackerman & Roberts, 2014), (Washington Post, 2014). The Obama administration stated in a series of press conferences its proposal for the modification of the telephone-based surveillance and data collection efforts of the NSA. The document "The Administration's Proposal for Ending the Section 215 Bulk Telephony Metadata Program," states that the NSA would no longer directly collect call records from phone companies and that the NSA could only obtain these records if court approval is granted (Savage, 2014). In addition, the NSA is only allowed to collect data two hops (degrees of separation) from the suspect (Gaist, 2014). Other changes included that the NSA would not spy on heads of state of allies and that further protection should be given to foreign citizens whose communications were collected in the NSA collections (Ackerman & Roberts, 2014).

In reaction to the statements made by Obama, Danielle Brian, the executive director of a non-profit advocacy group focused on exposing corruption and other government misconduct, the Project on Government Oversight, stated that the reforms would not have happened if it were not for the disclosures of Snowden. Brian also said that the US should provide safe channels and protection for whistleblowers (Allam, 2014).

### **4.3 NIST**

On 1 November 2013 the National Institute of Standards and Technology (NIST) announced that a formal review of its standards development process used to recommend encryption algorithms will be launched. This review is believed to be in reaction to an article in the New York times regarding documents leaked by Snowden stating that the security of NIST cryptographic standards was compromised (Pan, 2013). The disclosed documents indicated that the NSA deployed supercomputers and collaborated with certain technology companies, not



specified in the leaked documents, in order to obtain back door access to data encrypted through a NIST-approved cryptographic algorithm (Larson & Shane, 2013).

The leaked information suggests that the NSA has inserted back doors to encryption algorithms and cracked, subverted or circumvented cryptographic algorithms that are used in securing global commerce systems, banking systems, medical data, emails and many other services used by Americans (Larson & Shane, 2013). Bruce Schneier, a security researcher that assisted the Guardian newspaper to review the Snowden documents, stated that all encryption algorithms must now be considered as unsafe and that there is no way of knowing what methods to trust or mistrust (Talbot, 2013).

#### **4.4 Foreign relationships**

##### *4.4.1 Brazil*

As shown in Section 3.3.1, Dilma Rousseff, the Brazilian President, threatened to downgrade commercial ties with the US. The most direct consequence was the cancellation of her visit to the US planned for October 2013 due to a "lack of explanation and commitment to cease interceptive activities" from the US government (Hennessey & Bevins, 2013). In addition to the cancellation of the state visit, the Brazilian government cancelled a \$2.5 billion deal for Boeing's F/A-18 fighter jets, instead accepting a contract for Swedish Saab's JAS 39 Gripen (Horch & Drew, 2013), (Boadle, 2013).

##### *4.4.2 Germany*

Germany insisted it wants to investigate the NSA spying in Germany itself (Staff, 2014), thus wanting Edward Snowden to testify before a parliamentary investigation directly. This proved difficult and the ruling party doubt if Snowden can be a direct witness. The relations between the US and Germany has reached a significant low with Missfelder, the foreign policy spokesman for Merkel's conservative CDU, stated: "This is a very difficult situation; there is enormous disappointment on the German side" (Eckardt et al., 2014).

##### *4.4.3 Russia*

Russia has successfully used Snowden to paint the west as hypocritical. Snowden stated the following while interviewing Vladimir Putin, Russia president, (Logiurato, 2014) : "that these programs (NSA) are ineffective in stopping terrorism. They also found that they unreasonably intrude into the private lives of ordinary citizens". Putin, in reply through a translator, stated: "Mr. Snowden, you are a former agent, a spy, I used to be working for an intelligence service; we are going to talk one professional language". He continued, "Our intelligence efforts are strictly regulated by our law. So our special forces can use special equipment as they intercept phone calls or follow someone online. You have to get court permission to stalk a particular person. We don't have mass system of such interception. And according to our law it cannot exist...".

##### *4.4.4 Cloud based computing*

Outside of the US, there are growing doubts regarding the cloud based services offered by American companies on American soil, as businesses and governments suspect that they might be spied upon (Naughton, 2013). Technology companies outside the US says that they are gaining customers from US based Technology companies as they do not want to entrust their confidential information to the large US Internet companies in fear of the NSA's vast surveillance programs (Miller, 2014). Microsoft lost the business of the government in Brazil and IBM is spending millions of dollars to set up data centres outside of the US in order to ensure their customers that their information is safe (Miller, 2014).

Due to the Snowden disclosures, the technological companies in the US are estimated to suffer losses as high as \$180 billion by 2016, according to Forrester Research, a technology research firm. These estimates are based on the size of web hosting, cloud computing and worst case damages (Staten, 2013).

##### *4.4.5 Internet search behaviour*

Mathews and Tucker investigated how Internet search behaviour changed since the Snowden revelations (Marthews & Tucker, 2014). They monitored 282 search terms across 11 countries and used search items were

chosen to represent privacy related items. A chilling effect was observed in all countries that related to an increased awareness of government surveillance.

## 5. Future consequences

This section provides possible future consequences regarding foreign relationships, security and the general public. State agencies and organised groups, which can include terrorist or criminal groups, could assume that their computer communication were intercepted and would devise alternatives or would rely less on public computer network infrastructure. Public knowledgeable in security would become more vigilant with regards to securing information in their daily use of computer systems. The determination of the US to capture and prosecute Snowden will have a chilling effect on future whistleblowers. However, the popularity (rockstar status) of Snowden may encourage others to follow in his footsteps. Security agencies are now more aware of insider threats and will put in place measures to prevent these types of attacks from happening. For example, information will be compartmentalised to ensure that all the data is not available from one specific point. This concept is in contrast to the trend where data sharing was encouraged after the attacks on 9/11. The trust in the US to oversee the control of the Internet has been reduced and will not recover in the significant future.

There is also speculation that Snowden has not disclosed all the information he obtained from the NSA. It is feared that Snowden has stored an online cache of "highly classified, heavily encrypted material" that will be disclosed in the event of him being captured or physically harmed. U.S. officials and other sources have stated that Snowden has only disclosed a small portion of the classified information believed to be downloaded and that he keeps the rest of the documents as an "insurance policy" (Goodin, 2013), (Hosenball, 2013).

## 6. Conclusion

This paper presented an overview of the consequences and effects of Edward Snowden's disclosures. It included a brief timeline as well as a summary of the reactions of several countries and technology companies regarding the disclosures. We discussed the direct consequences of Snowden's actions relating to him, the NSA, foreign relationships as well as technology companies in and outside of the US. Finally, we presented possible future consequences regarding the disclosures.

We presented some of the positive and negative reactions and consequences to the disclosures. The debate relating to electronic surveillance programmes and the right to privacy in the digital age continues and will carry on for a long time to come. This includes human rights organisations stating how mass surveillance practices defy international human rights laws, and other institutions arguing the opposite. Regardless, however, if Snowden's actions are viewed as that of a traitor or hero, his actions lead to a new debate regarding privacy that cannot be ignored.

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