USE OF PASSENGER PROFILING TO ENHANCE AVIATION SECURITY IN KENYA

BY

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UNITED STATES INTERNATIONAL UNIVERSITY - AFRICA

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A Thesis submitted to the School of Humanities and Social Sciences, in partial fulfillment of the requirement for the completion of Master of Arts Degree in International Relations.

UNITED STATES INTERNATIONAL UNIVERSITY – AFRICA

SUMMER 2019
STUDENT’S DECLARATION

I, the undersigned, declare that this is my original work and has not been submitted to any other college or university other than the United States International University – Africa for academic credit.

Signature........................................ Date..................................................

COLLINS ODHIAMBO (656734)

This thesis project has been submitted for examination with my approval as university supervisor.

Signature........................................ Date..................................................

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SUPERVISOR

Signature........................................ Date..................................................

PROFESSOR MARTIN NJOROGE

DEAN, SCHOOL OF HUMANITIES AND SOCIAL SCIENCES

Signature........................................ Date..................................................

AMBASSADOR PROFESSOR RUTHIE RONO

DEPUTY VICE CHANCELLOR, ACADEMIC AND STUDENT AFFAIRS
ABSTRACT

The international aviation industry including Kenya has invested so much in the security sector to ensure more safety. Security techniques employed by most aviation industry players in Kenya at the various airports and in aircrafts involve many methods like screening processes where passengers walk through metal detectors. These methods have succeeded on many occasions but they appear to be facing challenges since the means through which threats to the aviation industry present themselves have seriously expanded and the methods of enactment have since become quite elaborate and really sophisticated. Aviation industry continues to spend huge amounts of money on security measures and there is need to get value for the investments. While for many years the aviation industry has been successful in meeting security challenges, the incident of September 11 2001 (9/11), proved otherwise. Kenya is currently under endless threats of terror attacks from the Al Shabaab terror group and this includes attacks against the aviation industry. Kenya has had several cases of passengers who departed from Jomo Kenyatta International Airport being arrested for drug trafficking in other countries. There has also been an increase in human trafficking through Kenya. In order to tackle the new kinds of covert and quite deadly security challenges, ICAO together with other national regulatory authorities and operators have investigated and ensured implementation of new and intense measures of security. The intent of this thesis was to investigate passenger profiling in Kenya as one of the recently emerging avenues of the increased aviation security. Profiling of passengers is a growing technique within the global aviation industry, especially in the developed countries, it has been seen to diminish risk of the threats to aircrafts. The aim of this thesis was to carry out an investigation on need for passenger profiling as an additional approach to aviation security and safety management then to assess whether or not Kenya needs to introduce it into its laws. The data was collected through extensive literature review on existing profiling programs used globally. The data was then analyzed using a thematic approach.
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DEDICATION

This thesis is dedicated to my lovely mother Risper Murunga, my caring mother-in-law Agnes Kerubo, my beautiful wife Lydia Kemunto, my kids Hawi Odima, Kamara Odima and Nyamusi Odima, my cousin Miriam Atieno and my friends George Odinga, Teti Caroline, John Eric, Jakoyo Midiwo and Rajab Kombo, Elijah Mugambi Muthuri and Edwin Kipkorir. If not for the love and support they gave me, this thesis would not have been possible.
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<tr>
<th>Abbreviation</th>
<th>Description</th>
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<tbody>
<tr>
<td>9/11</td>
<td>11th September 2001</td>
</tr>
<tr>
<td>ACI</td>
<td>Airports Council International</td>
</tr>
<tr>
<td>API</td>
<td>Advanced Passenger Information</td>
</tr>
<tr>
<td>ARSA</td>
<td>Avoidance, Reduction, Sharing, Acceptance</td>
</tr>
<tr>
<td>ASRS</td>
<td>Aviation Self Reporting Scheme</td>
</tr>
<tr>
<td>BAA</td>
<td>British Airports Authority</td>
</tr>
<tr>
<td>CAPPS</td>
<td>Computer Aided Passenger Pre-screening System</td>
</tr>
<tr>
<td>CCTV</td>
<td>Closed Circuit Television</td>
</tr>
<tr>
<td>EC</td>
<td>European Commission</td>
</tr>
<tr>
<td>ECD-GE&amp;T</td>
<td>European Commission Directorate-General Energy and Transport</td>
</tr>
<tr>
<td>EDS</td>
<td>Electronic Data Systems</td>
</tr>
<tr>
<td>EU</td>
<td>European Union</td>
</tr>
<tr>
<td>FAA</td>
<td>Federal Aviation Administration</td>
</tr>
<tr>
<td>FBI</td>
<td>Federal Bureau of Investigation</td>
</tr>
<tr>
<td>HKJK</td>
<td>Jomo Kenyatta International Airport</td>
</tr>
<tr>
<td>ICAO</td>
<td>International Civil Aviation Organization</td>
</tr>
<tr>
<td>IT</td>
<td>Information Technology</td>
</tr>
<tr>
<td>JKIA</td>
<td>Jomo Kenyatta International Airport</td>
</tr>
<tr>
<td>Acronym</td>
<td>Description</td>
</tr>
<tr>
<td>---------</td>
<td>-------------</td>
</tr>
<tr>
<td>KCAA</td>
<td>Kenya Civil Aviation Authority</td>
</tr>
<tr>
<td>KAA</td>
<td>Kenya Airports Authority</td>
</tr>
<tr>
<td>n.d.</td>
<td>No Date</td>
</tr>
<tr>
<td>PNR</td>
<td>Passenger Name Record</td>
</tr>
<tr>
<td>SARPS</td>
<td>International Standards and Recommended Practices</td>
</tr>
<tr>
<td>TSA</td>
<td>Transportation Security Administration</td>
</tr>
<tr>
<td>USA</td>
<td>United States of America</td>
</tr>
<tr>
<td>UK</td>
<td>United Kingdom</td>
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1 INTRODUCTION

1.1 Background of the Thesis

Over a long time and with the ever increasing level of globalization, civil aviation as an industry has become a central determinants of international trade. Aviation allows interconnection of countries to a point that the airports especially international airports have of late become the gateways or borders of countries. The necessity and prestige the aviation industry has received is attracting many criminals especially terrorists, drug traffickers and human traffickers who seek to use civil aviation to further their criminal activities and promotion of different interests. Efforts towards protection of the aviation industry have not been left behind and measures are strengthened to ensure both the safety and reliability in the industry internationally.

Terrorism is a relatively rare crime event in most airport set ups, it is however one of the few crimes which have the ability to escalate into interstate war (BEN-YEHUDA, 2015). It is also a kind of crime that is usually committed by people who cannot be easily identified physically and this calls for other ways like profiling which help have information about the passengers. Since September 11 2001, attention to terrorist activities and their prevention has increased on internationally (Power Politics and Interstate War in Africa, 2011); (Danziger, 2012); (Sinha, 2013); (North, 2014); (Pedersen, 2014). On September 11, 2001, the aviation industry was found unawares by four aircraft hijackings that resulted in the worst terrorist attack in the existence of aviation.

The aviation industry has experienced numerous violent threats including aircraft hijackings like the Air France hijacking in 1994 over Algeria, Pan Am Boeing 747 bombing and subsequent explosion over Lockerbie in 1988 (Unsinger, 2003) and in 2002, attempted missile attack on an the EL AL Israeli Boeing 757 in Kenya (OTS, 2005). The most serious threat to aviation industry within the past few years was terrorist hijacking and then subsequent destruction of the famous World Trade Center in New York in September 2001 (9/11). This
forced the aviation industry to go through a fundamental change in its approach to the handling of potential security risks.

Aviation security has in the recent past come under an amplified level of international scrutiny (Cavoukian, 2003), and this was further enhanced after attempted hijacking scare which occurred at London’s Heathrow airport in August 2006. This led to an increase in the level of security measures implemented throughout the aviation industry in an effort to prevent a reoccurrence of such events. As a result, authorities instituted stricter measures on passenger security. One option taken by authorities is the adoption of passenger profiling as a preventative security measure (International, 2006, March).

Civil aviation security threats and vulnerabilities in Kenya are continuing, evolving and challenging to predict. All facets of Kenya’s civil aviation are at risk be it passenger aircraft, air cargo, airports and related facilities and operations. New and emerging threats like suicide bombers, cyber terrorism, Transnational Crime (Drug trafficking, Human trafficking) and aircraft as a weapon of mass destruction. Despite improvements, aviation security audits show many states with serious deficiencies.

Profiling of passengers is believed to reduce airline and passenger risk from criminal activities (Ghobrial Atef & Wes A Irvin, 2004). If this is the case, utilization of passenger profiling an alternative way of mitigating threats to aviation industry may be a viable option from Kenyan perspective as profiling has the potential to identify threats to aviation prior to their development. Clarke (1993) investigated different uses of profiling with particular concentration on the marketing uses plus data surveillance methods utilized in profiling. Clarke’s (1993) study also discussed techniques, advantages, disadvantages, control measures and external constraints on use of profiling (Clarke, 1993). Currently, the access which organizations have to private data regarding their passengers has gone up with the growth of technology. Ease of data access implies that profiling of passenger can be a quick and potentially very effective identification measure.
It is unfortunate fact that the measures attempting to make air travel secure from future terrorist attacks or any criminal activity also make it less convenient and mostly substantially more expensive for most passengers. The unavoidable tension between benefits of being more secure and the costs that come with it is currently neither well understood nor satisfactorily factored into existing plans for enhanced airport security measures. One other important motivation for this thesis is to increase public awareness of this tension and encourage the Kenyan government to take it more fully into account in its planning.

It is understandable and quite appropriate that Kenyan government seeks to provide the nation with the highest standards of security that they can manage at a time when terrorist attack on this country’s infrastructure and population especially the aviation industry is eminent. But in the long term, it would be counter to the nation’s interest if we did not take into account the negative impacts of some of these security measures and strive to develop alternatives that would be more compatible with the normal travel interests of the public. These alternatives may be technical in character, may involve procedural changes, or may simply call for greater government investment in equipment and manpower. This thesis focuses on one such change, the employment of passenger profiling.

One of the usually mentioned options is the use of personnel databases on future airline passengers to identify those who might pose a threat to airport and aviation security in general. Computer Assisted Passenger Pre-Screening System (CAPPS) is an example.

Following the hijacking scare at Heathrow, there have been stronger calls for introduction of passenger profiling in a number of countries. Heathrow’s situation focused on the public’s attention on vulnerability of aviation industry to threats. This hijacking scare brought the option of profiling as an additional means to mitigate the threat of future hijackings into public eye.
1.2 Statement of the problem

In annexure 17 of the Chicago Convention, it is outlined the requirements for all contracting ICAO States, to which Kenya is a member, to have in place civil aviation security program. Under Annex 17, each contracting State is expected to ensure safety of passengers, crew, ground personnel and general public as a primary consideration when implementing a safety and security program (ICAO, n.d.).

Kenya faces constant terror attack threats in various facilities including her airports and aircrafts. The country has also had several cases of drug trafficking, illegal trade in wild animal body parts, human trafficking and attempted smuggling of weapons into the airports and aircrafts. These criminal activities especially drug and human trafficking keep happening despite the tight security measures put in place by the various authorities and they affect Kenya’s relationship with other countries while also affecting the economy and society negatively. This calls for the need to have a more proactive security measure if these challenges are to be managed. Passenger profiling could be considered by Kenya as a proactive security measure.

Many authorities have often attempted to improve security standards within aviation industry through different means for some time. Whilst maintenance of a secure aviation industry is always a high priority, there is renewed focus on aviation security and safety since the events that occurred on the September 11 2001 (9/11). Ramifications of that incident caused a great upheaval within aviation industry as ICAO, which is charged with regulation of all international aviation matters, stipulated that aviation security must be enhanced throughout the industry so as to minimize possibility of repeated attempts to emulate this incident. ICAO’s kind of response to 9/11 illustrated the reactive nature which the aviation community has always had (Kunreuther, 2002); (Patankar, 2003). Reactive actions are instances where incidents or accidents occur and highlight deficiencies within security and safety network or system, before
they are rectified; that is, responding to an accident instead of foreseeing one (Pariés, 1996). Szyliowicz (2004) argues that United States Federal Aviation Administration (FAA) was more reactive rather than being proactive in dealing with security issues prior to 9/11.

Proactive safety encourages prevention of failures before occurrence of accidents and incidents; thus reducing the costs and complications and assisting in design of improved safety processes. The Proactive interventions are the defining characteristics of an effective safety culture (Dunn, 2003; Helmreich, 2003). In relation to this thesis, proactive safety and security relate to the increased funding for and exploration of new measures to counter pre-flight, mid-flight, mid-air or post-flight threats to the aviation industry (Ghobrial Atef & Wes A Irvin, 2004); (Lemnitzer, 2003).

These measures have included a push for stricter security standards and awareness at domestic level and more importantly, international airports. Passenger profiling could be considered a further demonstration of the proactive measures taken by the Kenyan government in relation to increased aviation security and security.

1.3 Objectives

1.3.1 Main Objective

To demonstrate how proactive measures like passenger profiling can enhance aviation security thus reducing criminal activities that pass through HKJK.

1.3.2 Secondary Objectives

1. To investigate whether the use of passenger profiling as an approach to aviation security management would enhance security in our airports and aircrafts.

2. To assess whether or not Kenya needs to introduce passenger profiling into its laws.
3. To fill the gap in the existing literature by investigating the use of passenger profiling as an approach to aviation security management.

1.4 Research Questions

1. Will the use of passenger profiling, if introduced, reduce the number of crimes that pass through HKJK?

2. Is there need to introduce passenger profiling as an additional aviation security measure in Kenya?

1.5 Justification

Profiling of passengers is presently being utilized by a number of states as a measure of increasing security in aviation. So as to maintain the regional co-dependence together with the importance of international co-operation within international aviation industry being imperative to commercial success, it is crucial that Kenya’s potential benefits on such a critical issue be investigated.

The justification for this thesis is primarily based on grounds that despite appreciation of profiling passengers by the developed world, an academic study or investigation into profiling of passenger in Kenyan aviation industry has not been undertaken. Since globalization of aviation industry brings with it regional and international co-dependence on many levels including security and safety, the need to investigate profiling of passenger as a method of security management in Kenya is critical for both development and security reasons.

Situational crime prevention which are generally proactive are frameworks that identify techniques to reduce opportunities for crimes to occur (Clarke J. V., 2008). These frameworks are based on environmental criminology perspectives: routine activity theory, crime pattern theory and rational choice theory (Clarke R. V., 2018). These theories are founded on ideas of rationality that crime is a choice and that opportunities play a major role in development of any
criminal act (Clarke R. V., 2018). Opportunities are important causes of any crime, even crimes like terrorism which are usually deliberately organized, under these theories (Clarke R. V., 2018). The level and magnitude of a crime is related to the opportunities that are present to commit that specific crime (Clarke R. V., 2018). Overall levels of crimes can be reduced by decreasing opportunities for the specific crimes (Clarke R. V., 2018).

Passenger profiling which is a proactive measure of safety actively propagates for prevention of crimes prior to their occurrence hence reducing costs together with complications and assisting in designing improved safety processes. Proactive interventions are a defining characteristic of an effective safety culture (Dunn, 2003). The measures have involved a push for stricter security standards and awareness at domestic level and more importantly, international airports. Passenger profiling could be considered a further demonstration of the proactive stance taken by aviation industry in relation to enhanced security.

1.6 Scope

This research is confined to profiling of aviation passengers as a technique in aviation security and safety. This thesis relied on secondary data from various sources covering the use of passenger profiling between the year 2000 to 2019. The thesis focused on Jomo Kenyatta International Airport (HKJK) as the main international airport in Kenya.

1.7 Limitations

There was time limitation in this study. A thorough study of safety and security in aviation industry requires a lot of time. This study only took a total of about five months and this limited the coverage.

Lack of resources for the comprehensive research was another limitation. This study relied on secondary data because primary data would have required more resources to visit the various airports where profiling is practiced.
Gaining access to some of the information necessary for the research was difficult due to the protected nature through which those in the security industry scrutinize any request for information and access to security details. This was a limitation because it reduced the sources and variety of information used in deriving conclusions and recommendations. This led to the research sample primarily coming from confined sources.

A limitation of the data was the potential overrepresentation of successful attacks in the samples (Dugan, 2007). Successfully conducted attacks and drug trafficking through the airports are much more likely to be covered by the media than unsuccessful ones (Dugan, 2007). This is the same in all other criminal activities at our airports. In order to prevent drug traffickers, terrorists and other criminals from inspiring the population, it is likely governments attempt to keep cases which were successfully thwarted from the media’s attention. Also related to the success variable, a limitation exists in how success is measured. Because success is measured as the implementation of a crime, rather than whether the criminal achieved their goals, it is impossible to assess if passenger profiling measures are what actually reduced or blocked a crime which might have otherwise occurred.

Another limitation was bias towards countries with a free and active press (Dugan, 2007). Criminal acts are more likely to be reported from countries with media outlets which will report on any event and are relatively free from government’s oversight (Dugan, 2007). While this created a sample bias, the amount of criminal events going unreported is unknown. It is possible that states that are repressive enough to curtail the media have enough control on the population that terrorist attacks are also made less likely.

1.8 Operational Definition of Terms

1.8.1 Passenger Profiling

In law enforcement, the term profiling can be defined as the process of using behavioral evidence to infer future actions of offenders including the personality characteristics and
psychopathology of the perpetrators (Torres, 2006). This is behavioral evidence analysis and is one method out of many that can be used to describe criminal profiling according to Petherick (2005). This is similar to the description that Homant and Kennedy (1998) gave to profiling, stating that profiling assumes offenders have consistent behavioral traits that can be identified and captured for future apprehension (Kennedy, 1998). Blau (1994) indicates that the objective of profiling is to derive likely characteristics from the way in which a particular crime was committed which can then be used to, potentially, identify the perpetrator (Blau, 2016).

Curry (2004) surmises that profiling is an attempt to divide a population into groups. The group is defined not of a set of significant attributes, but by its propensity to engage in certain activities. Therefore, when considering Belau’s (1994) and Curry’s (2004) comments in unison, profiling could be seen as an instrument of division within a given population (Curry, 2004).

Turvey (1999) referred to profiling as the “process of inferring distinctive personality characteristics of individuals responsible for committing criminal acts” (Turvey, 2011). Douglas and Olshaker (1995) consider the ultimate goal of profiling is to narrow the scope of a suspect pool rather than to identify a single guilty individual (Douglas, 1995). Wilson, Lincoln and Kocsis (1997) describe profiling as analyzing crime behaviors to predict the probable characteristics of the offender. In addition, Douglas, Ressler, Burgess, and Hartman (1986) described profiling as “a technique for identifying the major personality and behavioral characteristics of an individual based upon an analysis of the crimes he or she has committed”.

These two definitions are based on an offender’s behavioral characteristics.

There are many definitions to the practice of profiling. The researcher chose to provide his and Watson’s (2009) definition. Therefore, for the purposes of this research, profiling is defined as: “the analysis of a passenger’s past actions via information gained by a governing authority, to infer current and future behavioral inclination, upon which appropriate preventative action can be taken” (Glambedakis A. W., 2009).
1.8.2 Terrorism

For the purposes of this thesis, the definition of terrorism discussed is that used by the U.S. Department of State and the National Consortium for the Study of Terrorism and Responses to Terrorism (START) at the University of Maryland, which produces the Global Terrorism Database (GTD). This U.S. Department of State’s definition is beneficial because of its inclusiveness of motivations that are not strictly political and because it is highly related to the criteria by which terrorist incidents are included in the GTD. The GTD is one of the largest and most trusted sources of terrorism data in the world (Dugan, 2007; LaFree and Dugan, 2009). The U.S. Department of State uses data collected and analyzed by the GTD to prepare their annual country report on terrorism (U.S Department of State, 2013).

Their definition of terrorism includes four main criteria:

a. The violent act was carried out by a non-state actor.

b. The violent act was aimed at attaining a political, economic, religious, or social goal.

c. The violent act included evidence of an intention to coerce, intimidate, or convey some other message to a larger audience (or audiences) other than the immediate victims.

d. The violent act was outside the precepts of International Humanitarian Law insofar as it targeted non-combatants.

Essentially, this definition means terrorism directly conducted by states are not included. However, acts which are merely speculated to be state-sponsored terrorism are included. The condition that the violent act must have been conducted for the purpose of achieving a political, economic, religious or social goal, is broader than some definitions of terrorism which can limit to political goals. For example; if a person is kidnapped for a monetary ransom under this definition it would not be considered terrorism. However, if that same person was kidnapped and the ransom demand was the release of political prisoners, it would fit the criteria for terrorism. The third criteria is the violent act must be intended to cause fear in the general
population; this makes terrorism unique as a crime because its intent is to influence how people feel. The victims of terrorism are not limited to the primary targets of the attack. The public at large becomes the secondary victims of a terrorist incident because they live in fear that another attack could occur. Finally, the fourth requirement indicates targets of terrorism must not be in a combat situation. This does not exclude the military or soldiers from being targets of terrorism; they just cannot be in an active combat situation when the violent act occurs.

The conceptualization and classification of terrorism is dependent upon how the term is defined (Shultz, 1978); (Gibbs, 1989). Because there are a multitude of possible definitions of terrorism, there are numerous ways to categorize terrorism (Shultz, 1978; Gibbs, 1989). Typologies of terrorism range from intricate and highly detailed to straightforward and parsimonious. While only one typology is utilized in this thesis, it is important to understand the possible factors that can be used to categorize terrorism.

Shultz (1978) created a detailed typology that includes three general categories of political terrorism: Revolutionary Terrorism, Sub-Revolutionary Terrorism and Establishment Terrorism. Revolutionary Terrorism is the “threat and/or employment of extranormal forms of political violence, in varying degrees, with the objective of successfully effecting a complete revolutionary change (change of fundamental political social processes) within the political system” (Shultz, 1978). These acts may be implemented by either endogenous or exogenous actors of the political system (Shultz, 1978). Revolutionary Terrorism, groups from inside or outside the country work to overthrow the current government through violent acts (Shultz, 1978). An example of a Revolutionary Terrorism organization would be Basque separatist groups. The Euskadi Ta Askatasuna (ETA) is a Basque nationalist and separatist group which uses terror tactics to accomplish their goal of independence from Spain. Alternatively, Sub Revolutionary Terrorism attempts to make certain changes to the current political system but does not seek to create an entirely new system (Shultz, 1978). This type of terrorism is typically employed by groups which are indigenous to the political system and includes ethnic, religious,
regional, linguistic, secessionist, and reactionary organizations to name a few (Shultz, 1978). Single issue terrorism, such as attacking abortion clinics, is an example of Sub-Revolutionary Terrorism because there is not an attempt to change the overall political system. The third general category of terrorism, Establishment Terrorism, differs from the other two forms because the threat or use of violence is perpetrated by an established political system against internal and external opposition (Shultz, 1978). In this form of terrorism, the state attempts to control the domestic populace or other nation-states through the threat or use of force (Shultz, 1978). Saddam Hussein’s use of violence against the Kurds is an example of Establishment Terrorism.

After creating the three general categories, Shultz (1978) further classifies terrorism according to seven concepts: causes, environment, goals, strategy, means, organization, and participation. Causes are any economic, social, political or psychological conditions which motivate the decision to use political violence (Shultz, 1978). For example; the causes of the Troubles in Northern Ireland relate back to centuries of British oppression of Irish Catholics, which resulted in a lack of civil rights and economic opportunities. The environment concerns primarily whether the political violence takes place domestically or internationally (Shultz, 1978). Within the example of Northern Ireland, both international and domestic terrorist organizations were active.

The next concept, goals, are the objectives which terrorists attempt to achieve; this includes both broad strategic objectives and specific tactical objectives (Shultz, 1978). According to Shultz (1978), strategy is the comprehensive plan which is used to achieve their goals. This includes both primary and secondary strategies involved in achieving long term and short term goals (Shultz, 1978). In the context of Northern Ireland, the goal of the Irish Republican Army and other similar groups was reunification of Ulster with the rest of Ireland. The strategy to achieve this goal was to target British military and police officers. Means are capabilities and techniques that are utilized to achieve goals within the strategic framework (Shultz, 1978). One
means employed by the Irish Republican Army and other organizations was the use of proxy bombs. Instead of a suicide bomber, a terrorist organization would coerce an unwilling individual to deliver a bomb to the intended target. Within this typology, organization is the formalized structure implemented for the planning, coordination, and application of political violence; the success of the violence is highly dependent upon the organization (Shultz, 1978). Irish Republican Army was one of the most well-known organizations operating during Troubles. The Irish Republican Army implemented violence to achieve their goals but they also had affiliations with a political party.

Finally, participation is the type of offender who is involved in political terrorism (Shultz, 1978). This can include both individuals and leaders who are acting on behalf of the government (Shultz, 1978). In the context of the Troubles example, it was primarily individuals who participated in terrorist acts, although there is some debate as to whether the British military’s actions on Bloody Sunday and other occasions can be described as Establishment Terrorism.

While Shultz (1978) created a highly detailed typology, other classification systems are more parsimonious. This thesis utilizes a typology created by Mickolus (1981) which constructs four classifications for terrorism: interstate, domestic, state, and international. This typology primarily depends upon the amount of government control or direction in the act of terrorism, and whether citizens of more than one state are involved as offenders or victims (Mickolus, 1981).

Interstate terrorism occurs when individuals or organizations controlled by the state commit a terrorist act and involve citizens of at least two countries (Mickolus, 1981). Essentially, while these terrorists may have some autonomy, they are engaging in surrogate violence for the state (Mickolus, 1981). State terrorism occurs when a government engages in terrorist acts within their own borders (Mickolus, 1981). The actions are similar to interstate terrorism, but there is no international component (Mickolus, 1981). Domestic terrorism occurs when the offenders are not associated with the government and the attack does not involve the citizens of more than
one state (Mickolus, 1981). International terrorism is carried out by non-state actors and involves the citizens of two or more states (Mickolus, 1981). This thesis examines domestic and international terrorism incidents in terms of attacks against aviation industry.
2 LITERATURE REVIEW

2.1 Introduction

This is an examination of numerous documents from academia, research and the aviation industry regarding the topic of passenger profiling. It looks into security classification of airports, responsible parties and ways and means that passenger profiling systems may be implemented. The three most popular ways of integrating a passenger profiling system into aviation security programs include the use of PNR data, frequent traveler programs and the increasing use of biometrics. Examples are taken from Asia (e-Channel, Immigration Automated Clearance System), the Middle East (Express Entry and e-Gate), Europe (Precise BioFlight, e-pass, IRIS and miSense); and North America (CAPPS, CAPPS II, Secure Flight, Registered Traveler Program, US-VISIT and NEXUS).

2.2 Theoretical Framework

Passenger profiling, from a risk management perspective, can be used by airlines to reduce the likelihood of unlawful acts against aviation. An analysis of the interrelationship between beliefs, attitudes and other influences on future action through decision-making theories strengthens the linkage between passenger profiling, risk management and criminology. By examining the theory behind risk control, this thesis potentially gives an indication as to how passenger profiling may be used within the Kenyan aviation industry.

2.2.1 Theories on Personality Profiling - Safety Risk Relation

In consideration of the psychological relation between the personality and safety, it became important to draw from the works of classical theorists on social and risk analysis to support arguments within this study. The proliferation of terror attacks in Kenya since 2011 has triggered a shift in which profiling of air passengers has intensified both physically and psychologically. Glembedakis (2009) says terrorist threats such as hijacking of aircrafts have
necessitated for new approaches to limit risks by focusing on air passengers’ behaviour and actions to avoid a repeat of incidents reported globally (Glamberakis A. &., 2009).

Psychologically-driven suicidal missions such as plane hijacking and bombing have become a common occurrence and aviation security teams today focus on observing passenger behaviour to prevent potential threats to safety. Nicholson et al. (2005, p18) observe that most people take risks in order to reap some psychological or material benefit, not for the sake of the risk itself. In such circumstances, the criminals tend to find soft targets such as airborne planes to execute the plans (Nigel, 2006). Considering this, this study is premised on some select theories on society and human behaviour which help to understand the aviation security screening in Kenya in the face of the shift in the nature of security threats.

2.2.2 Routine Activity Theory

Cohen and Felson (1979, p589) argue that for crime to take place, there are three elements required: absence of a guardian; a motivated offender and a suitable target (Cohen, 1979). Further, Hough (1987) opines that criminals tend to pick their targets driven by the size of reward, its proximity and accessibility. So it means that for a crime to successfully take place there must be a union of these three elements as a trigger factor (Hough, 1987). Glamberakis (2009, p84) holds that to discourage a criminal, there must be sufficient opportunity for attainment of ambitions and objectives. When individuals are disenfranchised they tend to keep off intended crime. This means that the target should not be attractive to a potential criminal in terms of ease of access and reward if the threat of crime is to be limited. This is where profiling comes handy in the aviation sector because it serves as a deterrent to potential criminals.
2.2.3 Rational Choice Theory

This theory holds that criminals select their crimes on the basis of evaluating personal influences such as money, security lapses or exposure of targets or the thrill of retaliation against a perceived enemy. Dugan (2007) ascertained that this theory is relevant in numerous incidents of hijacking or attempted hijacking in the aviation sector because these occurrences are articulately planned and executed with their hijackers well aware of the risk involved but because of the motivation of reward such as money and revenge (Dugan, 2007).

Felson (2009, p83) notes that there are four elements in the Rational Choice Theory which can be used to forecast crime (Felson, 2017). They include, getting one’s way, getting justice, displaying power and thrill seeking. Glambedakis (2009, p85) says the elements of getting justice and displaying power ring a bell in the aviation as equated by the September 11 incident where terrorist used the aircraft to show their power and trigger global shock while the destruction of the iconic World Trade Centre played out as an image of a group resolute to passing a message to the world (Glambedakis A. &., 2009).

2.2.4 Risk Management Process

Risk management is an ongoing process undertaken at various stages. These stages are: prior to commencing operations; when a new venture is in the planning stage; when any significant changes occur within or external to, the business; after accidents and major incidents; and at regular predetermined periods (Queensland). This process is widely recognized as being the applicable test for the management of risks (Wheeler, 2005). The risk management process consists of seven steps. These are; Establishing Context; Identify Risks; Analyze Risks; Evaluate and Rank Risks; Treat Risks; Monitor and Review; Communication and Consultation. The fifth stage which is “treat risks” is where passenger profiling could fit within the risk management process (Wheeler, 2005).
Passenger profiling can be considered a risk treatment process as it endeavours to reduce known risks to aviation such as passengers attempting to commit any crime through the airport. The ways in which organizations treat risks vary. These are, in order of preference from the least preferred to the most preferred, Prevention, Preparedness, Response and Recovery (PPRR), Avoidance, Reduction, Sharing and Acceptance (ARSA), and the more widely accepted method of the Hierarchy of Controls (Wheeler, 2005).

Of the three methods, the most accepted by the aviation industry is the Hierarchy of Control. The Hierarchy of Control ranks risk control measures in decreasing order of desirability and effectiveness (Monash, 2007). The higher in the hierarchy of control, the better and more reliable the control is (Queensland). The five steps of Hierarchy of Control are; elimination; substitution; segregation/engineering; administrative controls and; personal protective equipment. Passenger profiling could fit within either points one (elimination) or three, (segregation/engineering).

The initial step in the hierarchy of control is to eliminate the hazard. Hazard elimination is the most effective method as the risk is completely removed. Using passenger profiling can be interpreted as a method of eliminating hazards as profiling is used to reduce the risk of threats to the aviation industry. As a method of risk management, profiling would be suited as an avenue of elimination. The second step is to substitute the hazard by replacing the known hazard with a lesser affecting hazard. This could be a solution if the risk cannot be removed.

The third step is, to segregate or engineer the risk out. The segregation of risk can be completed merely by the removal of the risk. Engineering out a hazard is done by changing processes, equipment or the tools being used. One example of engineering out the risk is the increased use of automation within the aviation industry. For example, the Primary Flight Display (PFD), which displays aircraft information on a central computer screen within the cockpit, has replaced the multitude of placards and warning stickers on the panel. Warnings are now colour
coded white (least important), yellow (medium importance) and red (requiring immediate attention) (Wilson, 1997). A further way of engineering the risk may be the introduction of passenger profiling. The use of profiling as an engineering measure conforms to the requirement that to engineer the risk out, an alteration to processes is done. In this case, there would be changes to the existing processes if a passenger profiling technique were adopted.

The final step is the removal of the hazard by using personal protective equipment. Personal Protective Equipment (PPE) is used as a last resort when exposure to risk is not or cannot be minimized by other means.

2.2.5 Aviation Risk Management

The aviation industry has been described as a tightly coupled, high reliability industry operating in a high-consequence environment (Canada, 2006). In a tightly coupled system, any form of change or disruption has an immediate flow on effect to other areas of the business or industry (Canada, 2006). This description implies that any change in risk-management procedures by any one stakeholder can have a domino effect on the effectiveness of risk management initiatives by others (Canada, 2006). Tightly coupled industries also have the propensity for extreme failure when an accident occurs. This propensity is due to, in part, the likelihood that failure in one part of the system, creates failures for the remaining parts in a tightly coupled organization (Frederickson, 2002).

Tightly coupled industries are commonly referred to as having organizations that are highly reliable (Frederickson, 2002). High-reliability organizations have few accidents, despite operating in highly dynamic, technologically rich, and hazardous environments. Weick and Sutcliffe (2001) attribute the success of high-reliability organizations to managing risk through heightened vigilance. These organizations rely heavily on being acknowledging and reducing errors when discovered (Weick, 2001). Examples of high reliability areas include air traffic control and nuclear power (Hargrove, 1990). Considering these factors, aviation can also be
described as a tightly coupled, high reliability industry that attempts to minimize risk at every stage in order to maintain safety and security for all involved.

From an aviation perspective, the importance of risk management cannot be overestimated, as the consequences of failure and likelihood of failure are present. One of the more popular methods of risk minimization in the aviation industry is the use of Reason’s (1997) Model of Accident Causation. The application of passenger profiling may be integrated within the Reason Model as a form of “defense” against accident occurrence (Reason, 1990).

2.2.6 Reason Model of Accident Causation

Reason Model of Accident Causation is a generalist model attempting to trace the root causes of accidents and organizational errors that arise within an organization (Reason, 1990). The Reason Model is a method of risk management used within the high risk-low probability industries such as aviation, rail, medicine and oil production (Reason, 1990).

The Reason Model highlights the areas that can influence an organizational accident and the avenues of investigation post-accident. It states that any accident is not the fault of any one individual or any one action, but a multitude of factors that all combined to cause the accident occurrence. The Reason Model builds on previous accident investigation models, most notably the “Swiss Cheese” Model (Reason, 1990). Both of these models state that an organization has different layers of defenses against an accident and these layers have in-built gaps or holes through which the accident trajectory can flow. The Reason Model may be used as a tool of implementation, should there be agreement that implementation of a passenger profiling program will enhance aviation security in Kenya. One of the reasons behind instituting passenger profiling as a risk control measure is to reduce the possibility of criminal acts within the aviation industry. This may be done by analyzing criminology to understand why people enact criminal activity.
2.2.7 Criminology

A criminal act is defined as a wrongdoing to society involving a violation of a legal rule, resulting in consequences punishable by the state (Wells, 1992). People predominantly commit crimes because of two reasons. Either they are dissatisfied with the situation that they may find themselves in, or because they are being placed under a perceived strain. Two criminology theories are used as part of the examination of the survey results. These are the Routine Activity Theory and Rational Choice Theory. With the emphasis on profiling to stop the occurrence of criminal acts (Thomson, 2004), it is important to consider why these acts take place.

The foundations of classical criminology are that: people have free will; criminal activity is an easy way to attain personal satisfaction and wealth; the choice of crime over law can be controlled by the fear of consequences given by authorities; and the more severe the punishment, the greater chance there is to control criminal behavior (Siegel, 2008). Therefore, the classical school of criminology emphasizes the need for credible threats of apprehension and punishment in order to deter criminal activity (Dugan, 2007). It is the threat of apprehension where passenger-profiling would fit within the foundations of classical criminology as passenger profiling attempts to reduce the potential for criminal activity by increasing the likelihood of being caught.

2.3 The Problem of Terrorism

Terrorism is a concern because while terrorism does not occur with the same frequency as other crimes, the number of attacks and consequent damage are not insubstantial. In 2012, eleven years after the attacks on September 11th, 6,771 terrorist attacks occurred worldwide (US Department of State, 2013). The increase in terrorist attacks in recent years is staggering; in 2014 more than 16,800 attacks occurred worldwide (Miller, 1991). During the 2012 attacks, 11,098 people were killed and 21,652 people were wounded (US Department of State, 2013). The number of deaths and injuries in 2014 increased to over 43,500 and 40,900, respectively.
Also during 2012, 1,283 people were taken hostage or kidnapped during terrorist incidents (US Department of State, 2013). For 2014, this number increases to over 11,800. This dramatic increase in terrorist incidents over recent years is a cause for concern (Department, 2004).

In addition to the occurrences and immediate victims of terrorism, there are political, economic, and social consequences (Braithwaite, 2013; Malik, Abdullah, & Uli, 2014; Shaffer, 2015; Toker, Laurence, & Fried, 2015; Hobbs, Schaupp, & Gingrich, 2016). Since the 9/11 terrorist attacks, massive changes have occurred in counter terrorism policies and governments are spending more than ever on counter-terrorism measures (Shaffer, 2015). Terrorist attacks also impact the economy and the workplace (Malik, Abdullah, & Uli, 2014; Toker, Laurence, & Fried, 2015; Hobbs, Schaupp, & Gingrich, 2016). Hobbs, Schaupp, and Gingrich (2016) found that stock returns are adversely affected by terrorist events, particularly on the day the terrorist event occurs.

According to a thorough review of the literature conducted by Malik, Abdullah, and Uli (2014) the workplace is adversely affected by terrorist attacks in that fear of terrorism causes negative work attitudes, which lead to undesirable behaviors. Toker, Laurence, and Fried (2015) found fear of terrorism increases job burnout over time in a random sample of 670 Israeli employees. The authors found fear of terrorism is a stressor which leads to resources loss, such as insomnia, which then translates to a lack of emotional, physical, and cognitive resources (Toker, Laurence, & Fried, 2015). Ultimately, these lack of resources at work lead to job burn out over time when not mediated by factors such as co-worker support (Toker, Laurence, & Fried, 2015). A systematic review of the literature conducted by Braithwaite (2013) found in the 2001 – 2010 period there are typically high levels of fear and stress in a population exposed to terrorism. Also, public fear of terrorism is typically related to media consumption (Braithwaite, 2013).

While there have been substantial security increases after 9/11, opportunity for terrorism to be committed against airports and aircrafts still exists in many countries. Between November 2001
to July 2011, more than 25,000 security breaches at U.S. airports occurred (Jackson, 2011). This averages to a little over five security breaches per year, over a ten-year period, at each of the United States’ 457 commercial airports (Jackson, 2011). The Transportation Security Administration (TSA) argued that this number was misleading because it represented only 1 percent of the 5.5 billion people who were screened in this time (Jackson, 2011). Also, the TSA contended what was considered a security breach covers a very broad range of instances including a checked bag being misplaced once it has gone through the security screening (Jackson, 2011). Congressman Jason Chaffetz criticized the TSA for this attitude. Claiming security must be right every time because a terrorist only has to be successful once (Jackson, 2011).

In 2015, the then acting director of TSA was reassigned after a report showed that airport screeners failed 95 percent of security tests (Bradner & Marsh, 2015). Undercover teams from the U.S. Department of Homeland Security attempted to smuggle explosives and other weapons through security at dozens of airports across the country (Bradner & Marsh, 2015). In 67 out of 70 tests, the TSA agents allowed the banned items to pass through security without detection (Bradner & Marsh, 2015). The government is not the only organization able to fool airport security (Goldberg, 2008). A writer for The Atlantic was able to get past airport security using fake boarding passes which were created using a basic laptop and printer (Goldberg, 2008). While opportunities for terrorism have been reduced, opportunity still exists.

Two main patterns emerge in terrorist attacks against airports and aircrafts:

a. More sophisticated methods of detecting metal detectors and other security methods are being used.

b. Less sophisticated methods of attacking the airport itself.
That is according to (Flintoff, 2012; Mulrine, 2011; Jenkins, 2011). On one extreme, terrorists are devising more ways to get past security measures, such as in 2009 when a terrorist attempted to smuggle a bomb in his underwear onto a plane (Jenkins, 2011). Also, counterterrorism officials have received intelligence terrorists are experimenting with surgically implanted bombs (Jackson, 2011). At the opposite end of the spectrum, since security screenings have been increased at airports, radical leaders are encouraging younger members to plan simpler attacks less likely to be foiled (Flintoff, 2012; Jenkins, 2011; Mulrine, 2011).

Instead of hijacking airplanes, a trend of simple bombings or shootings at airports has begun to emerge (Jenkins, 2011; Mulrine, 2011). A few instances of these attacks are both the shooting at the Frankfurt Airport and the bombing of Moscow's Domodedovo Airport in 2011 (Jenkins, 2011; Mulrine, 2011).

Future policy should focus on implementing opportunity reduction techniques which concentrate both on more thorough screening technology and on increasing security in airports before the security checkpoint. Public policy regarding terrorism is a matter of global concern and certain states have adopted reactionary policies (Lyons, 2006; Valeriano & Powers, 2010; Davis & Bondy, 2010). For example, Valeriano and Powers (2010) find, that despite some differences regarding the war in Iraq, the United States and Mexico have considerable policy convergence on the issue of terrorism.

While public policy on terrorism covers a wide range of topics, one of the most studied aspect is the focuses on the treatment and perception of Muslims in a post 9/11 world (Davis & Bondy, 2010; North et al., 2014; Rytter & Pedersen, 2014). Davis and Bondy (2010) find being Muslim plays into the ideology of the Australian government in terrorist identification. Studies based on Denmark and the United States have also shown how Muslims have become the usual suspects regarding terrorism (North et al., 2014; Rytter & Pedersen, 2014). In terms of prevention policy, many countries have focused on cutting off the funding for terrorists.
Danziger (2012; Sinha, 2013). Danziger (2012) found the United States, the United Kingdom, and Israel all employed similar methods of combating the financing of terrorism after major attacks occurred in these countries. Although these are just a few policy areas, there is a worldwide trend of countries implementing and experiencing similar reactionary policies after the 9/11 attacks. Aviation passenger profiling could be an alternative proactive security measure at our airports.

2.4 Purpose of Passenger Profiling

This literature pointed out the primary benefits of positive profiling:

a. Higher attention to passengers whose backgrounds are not known.

b. Reduced costs for acquiring, operating and maintaining the security equipment at airports.

c. Reduced inconvenience of travel associated with security measures for the flying public, leading to economic benefits for the nation.

d. Retaining high airport security.

A successful positive profiling system could enhance airport throughput and increase the efficiency of the security system without harming airport security. The investigation also revealed the important qualifier that not scanning some bags opens opportunities for terrorists to find ways past the security. This makes it sufficient for many people to reject positive profiling as a good idea.

Positive profiling of passengers means that a percentage of passengers checking baggage at the check-in counter are identified as “trustworthy”. On a random basis, the bags of these registered travelers are exempted from passing through the scanning machines. This exemption lowers the overall number of bags that must be scanned, which in turn increases the attention that the government scanners can apply to bags belonging to nonregistered travelers. The increased
scanning time per bag would logically translate into a higher likelihood of detection of whatever threatening objects exist in the bag.

Alternatively, if the amount of scanning time per bag were not a function of the overall demand, then the reduction in demand would result directly in a reduction in the time needed to scan all the bags in the queue. Whether this is an important benefit or not depends on the length of the queue that would exist without profiling. The baggage scanning queue is, to first order, sensitive to only a few parameters: the number of bags per unit time entering the queue, the time needed to satisfactorily scan the bag for threatening objects, and the false alarm rate (also known as the false positive detection rate) that would call for additional machine scanning or (perhaps) even human intervention to open the bag.

No profiling system can ensure one hundred percent reliability of correct identification. So, deterrence is also important. By randomly selecting and scanning bags from “trusted travellers,” profiling reinforce deterrence by assuring that nobody, trusted or otherwise, can be confident of not having their baggage inspected. By maintaining assurance that nobody can confidently pass through the airport without also passing through the security scanning system, we deter terrorists from trying. In response, they may seek alternative targets and methods of attack where they would not have to face the same risks of discovery.

2.5 Israeli model

Most of the literature reviewed found confirmed that the Israeli model is what airport safety looks like and represents what it costs travelers. Security measures at Israel’s main airport, one of the world’s safest, are vastly different from those in Kenya and other parts of the world. This however comes with a tradeoff.

The queues at Israel’s Ben Gurion Airport begin when travelers are still in their vehicles, shortly after getting off the highway, at what appears to be a multi-lane toll booth. Instead of a toll collector like we have in Kenya, two security guards greet travelers. One asks where they’re
coming from and another stands nearby with a finger on the trigger of a machine gun. That welcome is the first of at least five layers of security personnel who scrutinize, interrogate, and often search passengers before they reach the gangway to board their plane. The personnel include members of Israel’s police and border patrol as well as uniformed airport guards and armed plainclothes officers.

The measures also include a system of racial profiling techniques which is claimed have raised allegations of anti-Arab discrimination from Israeli civil rights advocates. But security experts say that has helped prevent a major terrorist attack from being carried out at the airport for more than 40 years. “We can’t afford an attack. We aren’t a superpower. A terrorist attack at an airport is more than an attack, it’s a hit on the reputation of the entire country,” said Pinni Schiff, a former security chief for Israel’s Airport Authority, after the bomb attacks in Brussels in March 2016. He also argued that you can’t have 100 percent protection of privacy and human rights and not have terror attacks, it doesn’t go together.

The enhanced security at Ben Gurion means the extra inconvenience for all travelers, regardless of ethnicity, of having to arrive 30 minutes to an hour earlier than at other airports. It can also mean enduring the anxiety of getting stuck in long security queues when rushing to make a plane. For Arab and Muslim passengers mainly, it can mean awkward interrogations and sometimes body searches. Passengers have to get to the airport three hours before departure. The security checks can take a long time, but the security is good,” says Khader Attoun, a 55-year-old Palestinian health-care administrative cleric from East Jerusalem who frequently flies to Istanbul from Israel during his interview by the Christian Science Monitor. “I don’t sense any discrimination. Maybe for the young generation this is a problem.”

Israel has reason to be cautious, of course. Numerous terrorist groups within the region, and even a few countries, have made it part of their mission statement to wipe Israel off the face of the planet. Israeli security may be repressive, but it is effective. The last hijacking of Israel’s
state airline, El Al, occurred in July 1969; the last successful airline related attack was in 1986, when a bomb-laden suitcase exploded at the airport terminal, injuring 13. This success is directly as a result of passenger profiling.

2.5.1  Israel’s Layers of scrutiny

Security guards with Israeli flag patches on their sleeves are posted outside the sliding doors leading to the main departure terminal at the airport. Some travelers pass through with no questions, while others are asked to present identification documents. Once inside the departure check-in hall, a new line is made to and fro. Passengers and families lugging large suitcases slowly approach another security agent, who begins with a set script of questions about the luggage that veteran travelers can recite by rote: “Where are you coming from? Where do you live? Who packed your bags? Who was watching the bags since you packed them?” Security agents behind podium scrutinize passengers’ passports, itineraries, reactions and accents. Sometimes the questioning can continue for several minutes. Arab passengers are frequently subjected to body searches and more intensive interrogation. And though that’s the main checkpoint, security officials at Ben Gurion check travel documents twice more before passengers get to relax near the duty free shops.

“It’s annoying. You stand in many lines. If you look suspicious, they might open your suitcases and dismantle it piece by piece. I’ve seen it happen,” says Gal El, a 40-year-old airport employee from Jerusalem while being interviewed by the Christian Science Monitor during a work break. “They don’t take any chances. We accept it. The problem is people from abroad don’t understand.”

The profiling methods, which are rejected by many in the West, have also stirred debate in Israel and a major case on profiling was heard by Israel’s Supreme Court. The case reportedly prompted security authorities to relax the checks of Arab and Muslim passengers on their own, but the court did not side with the rights groups that brought the petition. "The Supreme Court
once said democracy should protect itself,” says Nerri Yarkoni, the former head of Israel’s Aviation Authority and an expert on aviation security. "Aviation should protect itself. If you don’t profile, you’ll lose aviation”. Even so, many of the heavy-handed security methods at Ben Gurion Airport – with 15 million passengers a year – will be more difficult and expensive to replicate in larger hubs like Brussels, where 22 million passengers passed through in 2014 en route to a myriad of countries, says Mr. Yarkoni. He added that, Israel’s checks may be too blunt and unjust by singling out too many Arabs, Yarkoni says, but Europe is too lax. If the Brussels bombers had been subjected to screening, he says, they might have been detected. While some profiling is necessary, he says, Israel needs to refine its methods to hassle fewer passengers. He advocates a more sophisticated process that relies less on people’s accents and more on intelligence databases.

2.5.2 US and Europe Model

After the Sept. 11 attacks, American support for aggressive security checks was strong, but in the past decade, bipartisan complaints about the TSA have begun to mount. But while Americans may be getting annoyed at the security process, there have been very few security incidents at US airports over the past decade.

In the congressional report, “A Decade Later: A Call for TSA Reform,” Congress noted that the TSA has grown into a massive agency, spending $57 billion over the past decade, with a workforce of 65,000 employees. But there have been more than 25,000 security breaches at US airports, and 17 “known terrorists” have managed to travel on 24 different occasions through airports monitored by TSA. Fewer than half of the US’s 35 largest airports have complete inline explosive detection systems to screen baggage. This is blamed on the fact that the measures put in place are more reactive than proactive.

While in Israel, airport security personnel are famous for focusing on the “human factor,” using racial profiling to single out those who seem to have Arabic names or features for extra
attention. All passengers are asked their purpose for traveling to Israel, and extensive and repeated questions about their travel agenda to trip up those who might be lying. In Britain, airports follow many of the same security measures that US airport security personnel use, mostly because Britain is a major transit route for air traveling leaving from and entering the US. As a result, British airports require passengers to place all metal items in a tray for scanning; remove all liquids more than 100 milliliters; remove laptops from briefcases for scanning; remove shoes and belts; and require all pre-flight passenger information to be passed along to US airport security officials. "It is clear that the terrorist is not deterred from planning and carrying out these types of attack," Ian Hutcheson, British Airport Authority’s head of security, was quoted as saying by the Guardian. “This is partly due to the fact that some of the things done are predictable and the challenge now is to identify different ways of delivering security."

European airports, by contrast, rely on national militaries and private security companies to maintain security. Countries such as France and Spain, which have had lengthy experience with violent terrorist groups, focus on extensive ID checks and screenings to sort through possible terrorist threats on airlines.

Walking through metal detectors, being asked if baggage may have been interfered with and even taking off shoes have become standard procedures that airline passengers in Kenya are familiar with. Many passengers find these measures reassuring, but they are not ensuring passenger safety and merely covering the airport if an attack rears its ugly head.

At Arena International’s Counter Terrorism and Security conference in London, Philip Baum, managing director of UK-based consultancy firm Green Light, said a radical overhaul of airport security that breaks with tradition and adequately protects against today’s threats is required the world over. He noted that aviation security industry is devoid of common sense and trapped by political correctness and reactive measures with today’s security measures. Everyone has become focused on security checks and it is an outdated approach that needs to change.
History reveals that procedures now in place have become commonplace because of past events, but the reactions of airport authorities have sometimes been misguided. For example, after the Pan-Am Flight 103 bomb that killed 270 people in 1988, a surge in focus was given to screening checked baggage despite the explosion stemming from a bag checked into the hold. Although the focus has shifted back on to security following the 9/11 terrorist bombings, airports are still left wide open to attack. Following the attempted ‘shoe bomb’ in 2003, when a US citizen attempted to destroy a Boeing 767 flight from Paris to the US, a new focus was given to locking cockpit doors and making passengers take off shoes at security gates. These changes have all happened where flights to or from the US have been involved. But where similar international events have happened in the past, for example when a Korea Airlines jet was blown up with liquid explosives in 1987 or an attack in Panama killed 21 in 1994, lessons were not learnt so fast. Out of three planes hijacked from October to November 2009, Egypt Air on 21 October, Al-Saeeda Airline Company on 24 October and Somalia’s Diallo Airlines on 2 November, none of the protagonists in these incidents were aided by weapons they took on the planes. Over-reliance on metal detectors, therefore, becomes an expensive and only marginally effective safety measure.

Airports should not stand in the shadows for fear of being labelled discriminatory; instead, they should employ active positive profiling. Instead of one mass crowd at security check-in, which can create fresh risks, passengers should be screened on the perceived threat they represent. There is need for three lanes of security checks with perceived low risk, medium risk and high risk passengers, who are those that their reasons for travelling cannot be easily identified.

Profiling could work if it was implemented carefully and not based on race. But governments shy away from the idea. Governments are avoiding the idea of selection as they are terrified it will lead to discrimination. The technique of profiling is bound by political correctness that could be overcome with proper training of airport staff. If it has been proven to work, then airports have a moral obligation to implement it. The focus, needs to be much broader.
Passengers should remain at the center of security activity, but the emphasis should move away from pure reactive measure to proactive measures like passenger profiling. By relying on procedures that proved successful at a recent threat, pre-emptive thinking should be employed. The carrying of explosives inside one’s body, for example, is becoming a real danger that can overcome modern security checks. Privacy issues for the mass public will need to be addressed.

Going forward, only a holistic approach to airport security will be sufficient. Ben Gurion which represents a holistic model has experienced some lapses in security but it still remains the most secure. In a November 2002 incident, a passenger slipped through airport security with a pocketknife and attempted to storm the cockpit of an El Al flight enroute from Tel Aviv to Istanbul. While no injuries were reported and the attacker was subdued by onboard flight marshals, the airport was closed for some time. The attacker was an Israeli Arab who had managed to evade security personnel when checking in. Most people would imagine such an event may not have happened if the passenger had been passing through what is now standard technology at most western Europe airports. The Israelis’ focus on the human factor is of course infallible. Ben Gurion may be more vulnerable to an attack from a disillusioned Israeli citizen as a result. If a terrorist network were able to recruit and train Israeli citizens, they could of course potentially evade the strict security procedures in place at Ben Gurion. But the range of methods employed at Ben Gurion has proven to be extremely effective in preventing terrorist attacks, as its history demonstrates. Even so, many security and terrorist experts believe that, if this were always accompanied by the latest passenger-oriented security technology, Ben Gurion’s security would be even more robust. This then calls for employment of both screening and passenger profiling techniques to complement each other.

The Israelis have taken on board the concerns of civil liberties groups and researchers in developing technology that could ease concerns about racial profiling, through the use of innovative check-in kiosks, but this can never of course replace the intuition and gut instinct that accompanies human interaction. Many airport authorities around the world have sought to
benefit from the Israelis’ approach to airport security, though none use the entire range of tools at their disposal. In the end, limitations on financial and human resources, and preferred methodologies, determine just how thorough or inadequate security protocols can be.

2.6 Kenya

The aviation industry is a vital piece of national infrastructure necessary for the survival of the Kenya’s economy. The aviation system within Kenya comprises of interdependent bodies that co-ordinate to allow the public a safe and efficient way of transport. The elements within Kenyan aviation industry include such things as freight and mail transporters and their associated infrastructure, personnel that are employed by industry participants such as terminal shops and related organizations such as catering, cleaning and ground handling contractors. Nonetheless, KCAA, KAA and the airlines are the predominant industry partners that oversee the system.

Customs help to detect and deter unlawful movement of goods and people across into and out of Kenya. They play a key role to protect Kenya through intercept illegal drugs and firearms and to target high-risk aircraft, vessels, cargo, postal items and travelers. From an aviation perspective, Customs contributes to the multi-layered government approach securing Kenya from potential overseas threats. The importance of Customs in administering any form of passenger profiling program is vital.

Immigration is primarily responsible for the entry and exit of foreign nationals into the country and to assist with settlement if they so wish. Supplementing this role, Immigration also plays in a role in monitoring national security buy tracking movements of individuals into and out of Kenya. Immigrations department also issues travel visas and e-passports. These passports contain biometric identifiers such as an iris scan, fingerprint or facial recognition data stored in a microchip inserted in the passport document. These measures aid in providing a multi-level
layer of protection for passengers in congruence with other agencies. Issuing Kenyan passports is an integral element in the aviation framework. This is because the biometric information that is held in passports assists in identifying the holder of that passport and can be used to verify such things as nationality and movement patterns.

The Ministry of transport also plays a key role in aviation industry since it administers the legislative requirements of the industry to maintain compliance with the International Standards and Recommended Practices (SARPS) of the International Civil Aviation Organization (ICAO). The ministry regulates the protective security provided by Kenyan aviation industry by working with airports and airlines to assess their risks and their mitigation measures. It also audits airports and airlines security measures and intelligence assessments together, tests their compliance with legislation and regulation, and recommends any modifications as necessary to policy and security regulation. Prior to any form of passenger profiling system being implemented, there are a number of measures that need to be taken in order to minimize the potential clash between civil liberties and the need for a stronger security presence. This includes the legislative instruments that are in place in the Kenyan aviation industry to protect the passenger from any untoward usage of their personal information.
3 RESEARCH METHODOLOGY

Given the emotive and political nature of profiling generally, the topic can conjure-up many personal and political reactions. This thesis thus utilized a qualitative evaluation of existing studies and practices of passenger profiling in aviation. The study is generally investigative.

The data collection process entailed a thorough review and search for any documentation relating to passenger profiling and any issues that surround it. It also involved asking questions such as: Who currently uses profiling? How do they use it? What issues (if any) surrounds its introduction or acceptance? Would the same things occur here in Kenya? These questions formed the base of the data collection process.

3.1 Investigative

Investigative studies are conducted when the area under research is relatively new and there are minimal known facts (Cooper & Schindler, 2003). In addition, it is employed so that research can uncover new data from which further research and a greater in-depth examination and level of knowledge can ensue (Champion, 2006). Maxfield and Babbie (2006) and Neuman and Wiegand (2000) state that the majority of research that deals with sensitive topics, and passenger profiling is one, is conducted via an investigative route. The linkage to this research is through risk perception. A study into passenger decision-making by Fischhoff, Bruine de Bruin, Perrin, and Downs (2004), showed that risk perception could be used to gauge the vulnerability of passengers’ personal risk thresholds before they travel.

An investigative design fits with qualitative data, as data gathering techniques are not associated with any particular method or theory and are used to develop a solid picture of what is occurring (Neuman & Wiegand, 2000). Hence, in terms of this research, an investigative study is being conducted in order to discover more about the travelling public’s perceptions of passenger profiling in aviation. The investigation entailed desk study.
3.1.1 Desk Study

The desk study involved an exhaustive review of the following documents touching on issues to do with aviation security and passenger profiling.

3.1.1.1 Aviation Security Reports and Airport Security Reports

Reports made by various agencies and stakeholders of the aviation industry were reviewed and their position on security situation analyzed.

3.1.1.2 Program Based Documents

Documents, especially ICAO annexes, covering security programs in most parts of the world and making recommendations were analyzed.

3.1.1.3 Internet search

Various websites having both journals and articles were accessed and materials studied in relation to aviation passenger profiling and deductions made.

3.2 Inductive Reasoning

Inductive reasoning, or logic, is when a specific event is examined in detail and, from that, larger generalisations relating to similar events or situations, are able to be made (Champion, 2006). Neuman and Wiegand (2000) state that inductive reasoning begins with detailed observations of a phenomenon such as a topic or vague concepts about a situation, and from that, the researcher is able to generalise their ideas and observations relating to the rest of society.

An example of the inductive approach used in a qualitative study is Weatherboard’s (1986) research into the impact of cocaine on rural Bolivian culture. Weatherford spent time in rural villages to examine the impact of the cocaine culture and discovered an exodus of local young males into the larger towns to work in the cocaine trade. Weatherford then determined that the
transfer of labour from the smaller villages into larger towns resulted in an inability of the local townsfolk to produce enough food and thus ended up in a localised famine. Weatherford then theorised that if this was happening in this town, who is to say that it does not in other villages. This example highlights the ability of inductive reasoning to make generalisations from a specific event or action.

Likewise, this research is taking a specific topic, that of aviation security, and examining it in detail to derive a suitable conclusion from the observations that are made. In terms of this research, traveller opinions on passenger profiling are being sought by the researcher in order to gain a better understanding of the phenomenon so that generalisations and improvements can be made in regard to the practice of passenger profiling.

However, problems arise out of inductive reasoning as it is highly individual and the initial responses given to any topic such as aviation security can be highly emotive and can change according to the circumstances and situation that the respondent finds themselves in.

3.3 Deductive Reasoning

Deductive reasoning involves using the scientific approach to profiling and uses logic as its base for justifying its actions. Deductive reasoning takes a situation and logically concludes that the offender’s characteristics are a direct result of the physical evidence of the crime (Petherick & Turvey, 2008, cited in Petherick, 2009). Deductive reasoning states that if the premise is true, then the conclusion must naturally follow to be true also (Petherick, 2009). Therefore, using 9/11 as an example, the end result was the destruction of the World Trade Centre in New York and the damaging of the Pentagon in Washington D.C. which then went on to cripple USA airspace for a period. Al Qaida claimed responsibility so therefore, it would be logical to deduce that they were responsible for the acts of terrorism.
3.4 Analyze and Report Results

The qualitative analysis was done via a thematic analysis. The thematic analysis followed the themes of general, registered traveler schemes, profiling, complacency and then general observations. These themes were used as part of the report’s data analysis.
4 FINDINGS AND DISCUSSIONS

4.1 General Findings

The findings in this section are mainly from passenger profiling practices which are being done in the US, Israel, European countries and Australia.

Literature shows that from an aviation perspective, profiling systems are based on information gathered about a passenger’s travel and general background for the purposes of increasing the security level of the airline. Today, identification cards with embedded chips are becoming the norm and biometric technologies featuring facial, fingerprint or retinal recognition are finding increased use. Suparno Banerjee - EDS Vice President, Global Government Industry (Banerjee, 2007, p. 3) Banerjee’s (2007) statement highlights the increased application of and research into the use of identity cards as a technique of identity management.

The proliferation of identity cards within society as a means of personal identification is growing. In the United States, legislation has established that digital identity credentials will be required for citizens to board airliners or gain entry to federal government buildings (Hutchens, 2007a). This increased application of identity management (Electronic Data Systems Corporation [EDS], 2007a; 2007b) may be referred to as a way for organizations to monitor individuals while in the workplace via the use of swipe card access to restricted areas.

It has been argued that passenger profiling is a means of identity management. EDS is a major competitor in the global identity management field and Banerjee’s (2007) statement highlights that the way in which improved identity management and potentially profiling, can be accomplished. That is, using biometric, facial and fingerprint technology.

An important characteristic of profiling as noted by various sources of information is its covert nature. Because of this, profiling has a greater potential to reduce the risk than other more overt forms of identification like passenger screening. This risk reduction potential is highlighted by
the notion that profiling is done away from the view of the public and can be used to single out potential criminals without their knowledge. This veiled ability is its greatest strength.

Passenger profiling is also reported to have the potential of enhancing border security. This is because matching passenger details between their Passenger Name Record (PNR) data and national immigration authorities can speed up the customs and immigration clearance process at border control. This inter-connectivity aspect of passenger profiling has the ability to reduce the chances for would-be criminals to cause an incident.

Passenger profiling has been confirmed to be different from screening. Passenger screening is when passengers proceed past check-in and are stopped by guards at a security screening point upon which passengers pass through metal detectors (Joint Committee of Public Accounts and Audit [JCPAA], 2004). Even though profiling techniques such as the CAPPS II program in the USA reveals information that screeners may otherwise not discern, its use does not discount the need for a face-to-face screener. This is because characteristics such as nervousness or hidden contraband are only detected by a perceptive screener (Persico & Todd, 2005). Because of this, profiling and screening complement each other and thus make the environment more difficult for any prospective criminal in airports where it is employed like Ben Gurion in Israel.

According to Viscusi and Zeckhauser (2005), the FBI developed a profiling technique that takes into account the person’s age, race, gender, national origin, appearance, and baggage. In addition, the FBI has incorporated terrorist risk profiling into their assessments. Targeted screening based on these risk profiles, could reduce the security risk by as much as random searches, but may involve a further time delay for passengers. This is an example of how profiling and screening can work in cohesion.

The Airports Council International (2006, March) noted that the introduction of passenger profiling techniques (including registered traveller programs) is their preferred method of increasing aviation security. However, if profiling focuses on one particular group over another,
even if they do not actually constitute a credible risk, then using profiling can create an undercurrent of mistrust between the profilers and the profiled (O’Malley, 2006). This can then lead to discrimination between the two, which can cause further misgivings and can thus turn that minority into a majority due to this discrimination.

Alberto and Bogatz (n.d.), found that focusing only on those people who “fit” a specific profile of people who may cause harm ignores the possibility that someone who does not fit the profile may be engaged in, or be an accomplice to, causing harm. In order to circumvent these concerns, any form of profiling system should be based on behavioural inclination and expectation, rather than racial parameters.

As with any new process to be used in the public domain, most sources agree that, there will always be issues that need addressing before the new process can be introduced and accepted by the public. While there is great discussion and debate over what defines profiling, its use within aviation security, for better or worse, is being adopted with great eagerness by governments who need to be seen to be actively engaging in risk minimization strategies.

Reports completed by the Airports Council International (2006, March) and the ECD-GE&T (2007) report as well as the Information Integration Theory which is used in decision-making also gave insight into the profiling debate. The stimulus integration element, when related to this thesis, has been interpreted as the integration of information regarding increased security levels and their perceived need. In this thesis, the increased security level is the use of passenger profiling. Information from various sources echoed the point that profiling may be a positive step to improved aviation security. The information also indicated that there is an awareness of passenger profiling and there is personal desire to have it introduced.

The above shows that the findings were agreeable to the concept of passenger profiling. This is supported by research conducted by the ACI (2006, March) who found that security processes at airports only focus on weapons detection, rather than detecting people who have malicious
intent and that security emphasis should be placed on profiling passengers in order to identify those that may pose a greater risk. Additionally, the ECD-GE&T (2007) report found that profiling could be effective in identifying passengers who pose a significant security threat.

On how improved security measures may be accomplished, the investigation indicated that profiling passengers to improve aviation security may be an acceptable change as it would speed up the check-in process and improve security levels which in-turn make the travelling public feel safer. Using the stimulus integration element of the Information Integration Theory, it can be surmised that once passengers have incorporated new information, that security levels need improving then they are openly agreeable to offer suggestions on how that should be accomplished. The view that profiling should be introduced is brought out as a direct result of new information gained via mass media sources that claim aviation security needs improvement to match the current threats.

Most materials on aviation security show that the majority of passengers prefer undergoing further security measures if it assures them safety. These results strengthen the point that the traveling public is in favour of increased security measures; however, the form that those measures take still needs investigation. Passengers would not be displeased if there were to be a passenger profiling system introduced as a measure of increasing security and they are willing to undergo greater security screening.

The assessment of data from various sources concluded that passengers are willing to have a registered traveller scheme but with proper regulatory measures, along with the inherent increase in airline security, as registered traveller schemes can potentially be exploited by terrorists. This poses a dilemma. In one instance there are calls for increased security and passenger profiling, whilst in the other, passengers are skeptical to undergo further security checks due to a possible perceived misuse of the system. Therefore, the thesis findings were contradictory but with a bias to support for passenger profiling. This could possibly relate to
how question were initially framed in order to illicit a response. This is the premise of the Prospect Theory. The way in which a problem or situation is presented for solving (framed) impacts upon the final decision made (Mianelli, 2004 November; Tversky & Kahneman, 1981).

4.2 Security Classification of Airports

Airports are classified into six security categories according to the annual number of passengers screened for security purposes. The six airport security categories are Category X, and Category One through Five. Airports that require the highest level of security are Category X. Currently U.S. airports retain this classification. The following types of airports may be designated Category X: Airports where 25 million or more persons are screened annually, Airports having 1 million or more international enplanements and Airports with special considerations like history of incidents or airports in unique locations. Category One airports are those where more than 2 million persons are screened annually. Category two airports are those with at least 500,000 but less than 2 million persons screened annually. Category three airports are those with less than 500,000 persons screened annually. Category four airports are those that conduct screening for flights that deplane passengers into a Sterile Area (SA) at another airport, in this case the total number of persons screened is insignificant. Category five airports are those where screening is not required and that serve aircraft seating 31 through 60 passengers.

4.3 Security Responsibilities

Ensuring safety and security in Kenyan airports is the responsibility of National Transport Safety Authority (NTSA), Kenya Airports Authority (KAA), Kenya Airport Police Unit (KAPU) and the Airline Operators.

4.3.1 National Transport Safety Authority (NTSA)

The NTSA has the responsible of ensuring the safety of air travel through establishment of security requirements, inspection of airline and airport security operations, and by issuing civil
penalties for noncompliance with those requirements. The operational role of the NTSA in airport security is limited to the dissemination of intelligence and threat information.

4.3.2 Kenya Airports Authority (KAA)

KAA is responsible for security on airport property. They are charged with providing a secure operational environment for both the operators and passengers. To achieve this, the NTSA has established security requirements for the response of law enforcement to various security threats, physical security such as airport perimeter fencing, and access restrictions to operations areas. KAA is responsible for securing access to the Airport Operations Area (AOA) by controlling the movement of persons and vehicles and providing the general law enforcement response to any security breaches or problems.

4.3.3 Airline Operators

Airline operators are the ones responsible for the most visible security measures. The measures include securing aircrafts against introduction of any explosive or incendiary devices, screening of passengers and carry-on baggage, training and testing of persons responsible for the screening, monitoring and securing all sterile areas under their control and controlling the handling and loading of baggage and cargo.

4.4 Mechanisms of Airport Security

Passenger profiling is not new in the aviation industry. Sam Husseini, a spokesman for the American-Arab Anti-Discrimination Committee, was quoted in the January 2, 1998 New York Times as stating that profiling had been going on for 20 years, administered by individual airline employees. He suggested that a more objective system might be preferable, as it would tend to eliminate the biases of an individual.

Due to the limitations of existing bomb detection technology, aviation security experts have sought to use profiling to reduce the number of passengers to be exposed to screening. This
would allow airport security enough time to focus on those passengers who are most likely to
pose a threat at the airport and in aircrafts.

Northwest Airlines began to develop a computer-assisted passenger pre-screening system
(CAPPS) in 1994. This automated screening system was designed to separate out that small
percentage of passengers who should be subject to additional security measures. Following the
TWA flight 800 crash in July 1996 and the initial suspicions that a bomb was involved, interest
in passenger profiling generally, and CAPPS in particular, increased. Recommendation 3.19 of
the Gore Commission recommended that automated passenger profiling be used to complement
existing bomb detection technology. Also, section 307 of the Federal Aviation Reauthorization
Act of 1996 (P.L. 104-264, 110 Stat. 3253) directed FAA to assist airlines in developing a
computer-assisted passenger profiling system in conjunction with other security measures and
technologies. After 1998, CAPPS was widely employed by the airlines.

Concerns were however raised at that time about this passenger profiling system. The American
Civil Liberties Union and Arab-American groups, among others, expressed concern that
CAPPS could discriminate by using factors such as the passenger’s race, religion, or national
origin. The Subcommittee held a hearing on this issue on May 14, 1998. The factors the airlines
use are a secret. But airlines insisted race, religion and national origin are not factors. Published
reports indicated that the factors include frequency of travel to certain destinations, whether the
passenger is a member of the airline’s frequent flyer program, and whether the ticket was bought
with cash or a credit card. The latter two were factors because it was assumed that terrorists
would not participate in a program or use methods of payment that would reveal aspects of their
identity.

Previously, passengers who fit the profile would never know that they had been selected. Their
baggage might be examined by an explosive detection device or matched with them to ensure
that they actually boarded the flight. Later, however, passengers who were selected by CAPPS
would be subject to additional security at the gate before boarding the aircraft. Due to the concerns that had been raised about the potential for discrimination, DOT and the Gore Commission asked the Justice Department to review the CAPPS profiling system. Justice issued its report on October 1, 1997. The report concluded that CAPPS does not include race, religion, or national origin as a screening factor; Neither the Constitution or any Federal law prohibits the implementation of the CAPPS system; To a limited degree, CAPPS distinguishes between passengers on the basis of whether or not they are American citizens but that this was justified and constitutional.

Justice did make the following recommendations; FAA should periodically review the screening factors in CAPPS to ensure that they are reasonable predictors of risk; Justice should undertake a post-implementation review within one year to ensure that passengers are not singled out on the basis of race, religion, or national origin; DOT and FAA should undertake efforts to inform the public about the profiling system; Airlines should be prohibited from altering CAPPS without government approval; and FAA should require airlines to establish procedures for implementing CAPPS to ensure that it is not done in a discriminatory or insensitive manner.

Many concerns about discriminatory profiling have always persist. After September 11th, attention however shifted to the effectiveness of the profiling systems which were in use. It is unclear whether the profiling system during the September 11th attack selected the terrorists who hijacked the planes. Moreover, many people note that the type of person who is often selected for additional screening, elderly women, disabled passengers, and children, are not the sort of person who is most likely to pose a security threat. They suggested that any profiling system should focus on those who are more likely to pose a threat.

There is no technological "silver bullet" available today to solve the complexities of airport security. The only true silver bullet is a system of layered defences which criminals must
successfully carry out their activities. The structure of a layered defense is unique to each airport facility, but the common requirement of all airport facilities is interaction of human resources and technology. Technologies being used across the world today are a combination of both old and new systems.

4.4.1 Passenger Name Record Access

Use of PNR data is one of the least intrusive methods of information gathering. On electronic tickets, the PNR can also be referred to as the Booking Reference Number. PNR comprises passenger name, address, telephone number, flight number, method of payment and itinerary (Swartz, 2004a). In the USA, information that may reveal religious or racial status such as meal orders and health status are not included (Department of Homeland Security [DHS], 2004, p. 2; EU and U.S. agreement, 2004). Passenger-profiling program based on PNR data are the preferred option for many countries (Council of the European Union, 2007; Government Accountability Office [GAO], 2005; Transportation Security Administration [TSA], 2004a). The proposal for the introduction of an integrated PNR profiling system across all external EU borders is preferred (Republic of Slovenia, 2008).

4.4.1.1 CAPPS

Computer Assisted Passenger Pre-screening System (CAPPS) was pioneered by Northwest Airlines and had been adopted by most domestic USA airlines by 1997 (Curry, 2004). CAPPS used data contained in a passenger’s PNR and sought to match patterns between a passenger’s PNR data and their intended travel itinerary. If CAPPS data matched a particular profile, the record was flagged and the passenger was further screened by airport security staff (Cavoukian, 2003). The data used for the CAPPS program were age, sex, method of payment, place and time of payment, boarding sequence, seat selection, whether the passenger was accompanied or not and whether they had checked or unchecked baggage (Curry, 2004).
While CAPPS could inform authorities of a passenger’s travel pattern, there was no mechanism for a more detailed evaluation (Cavoukian, 2003). Also while not being invasive, the accessing of this data was an area of concern for passengers as the safeguards on the use of private information proved to be insufficient (Cavoukian, 2003; Swartz, 2004b).

4.4.1.2 CAPPS II

Just like CAPPS program, CAPPS II used passenger information collected by the travel agent upon reservation. Unlike CAPPS, CAPPS II system checked passenger information against both government and commercial databases to determine the level of security screening per passenger (Ghobrial & Irvin, 2004; GAO, 2005, Matthews, 2002; Soghoian, 2008).

The CAPPS II program met resistance from the public who felt that they are being targeted for no reason other than their race, colour, or religion, even though the program did not specifically target these areas when assessing passenger risk (Subcommittee on Aviation, 2002). With CAPPS II using multiple outsourced databases, there was greater potential for privacy access issues and for information to be used in a manner other than that for which it was intended. For example, following the 9/11 attack, many Arab Americans were refused entry onto aircraft even after they were cleared by security (Alberto & Bogatz, n.d.). This highlights the point of public resistance to the program. CAPPS II did not proceed past the trial stages for these reasons (Soghoian, 2008).

4.4.1.3 Secure Flight

The “Secure Flight” program was developed after concerns over data security led to the cessation of CAPPS II (Swartz, 2004a). “Secure Flight” has been marred by repeated concerns that it is nothing more than a reworking of the older CAPPS II (Hughes, 2004). These concerns were because “Secure Flight” requests airlines to forward a greater amount of information about their passengers to authorities than under CAPPS II (GAO, 2005; Swartz, 2004a; Transportation Security Administration, 2004a). Secure Flight’s introduction was delayed until 48
2010 due to serious flaws in its original deployment (GAO, 2006) and over repeated security breaches of information access (EPIC, 2008; Hawley, 2006). If using the PNR system is not an option, then other alternates include using a frequent traveler program.

4.4.2 Registered Traveler Programs

Registered traveler programs are a further way of implementing a passenger profiling system. Using a registered traveler program can be accomplished through accessing the frequent flyer data that is held by airlines. Using this option, there is no further intrusion into the lives of passengers. Additionally, using airline alliances as a source of data for a registered traveler program could enhance regional interoperability. Registered traveler programs have the added advantage of potential interoperability amongst nations. This is because as the data is already within an airline’s frequent flyer database, it can allow passengers to have a seamless transfer between interlining carriers within the same alliance. This could be accomplished if security clearance requirements were accepted amongst a group of countries with similar security level standards.

4.4.2.1 Registered Traveler

Testing of the Registered Traveler scheme in the USA commenced in January 2006 (DHS, 2006). Registered Traveler separates passengers and their luggage into three categories: low, medium and high-risk registered travelers. Passengers identified as medium and high risk underwent stricter security checks every time they presented at an airport. Low-risk travelers would choose to undergo in-depth background investigations in exchange for shorter security checkpoint lines (EDS, 2007b). The trial of this program was conducted at various airports attracting over 10,000 participants (EDS, 2007b).

Participants in the registered traveler scheme supplied authorities with iris images and electronic fingerprints (TSA, n.d.). Once registered, this information was submitted to the TSA, where a security threat assessment was performed. Registered travelers would thence be
“known” to authorities and not subjected to secondary searches (EDS, 2007b; TSA, 2004b). The passenger’s biometric identifiers are used to verify their identities at security kiosks, once completed, they are then processed through the normal baggage security screening. Therefore, passengers who once spent significant time in security lines could speed through the procedure in a few minutes with automatic identity verification (Ghobrial & Irvin, 2004; Hewlett-Packard Development Company, 2008) thus having the double benefit of reducing passenger waiting times and increasing security (EDS, 2007b).

Registered Traveler programs can provide an overall enhancement to aviation security. Applicants for the program must provide biometric information, which is then verified and authenticated to safeguard against the use of a false or stolen identity. In addition, all applicants must confirm their identity using biometrics such as fingerprints or iris scans (DHS, 2006). However, as the program is currently in a state of flux, there are other programs such as the US-VISIT program.

4.4.2.2 US-VISIT

The U.S. Visitor and Immigrant Status Indicator Technology (US-VISIT) program in the USA tracks the entry and exit of foreign visitors by using electronically scanned fingerprints and photographs (Creedy, 2007; European Commission Directorate-General Energy & Transport, 2007; Salter, 2004; U.S. State Department, 2004). The biometric information within the passports of those foreign nationals is then checked against a watch-list.

4.4.3 Fingerprint Identification

The use of fingerprint identification is considered one of the most acceptable and least intrusive technologies for common identity management systems (Hutchens, 2007b). Using fingerprints as a form of identification is being examined by airlines as a way of increasing airline security and reducing passenger wait times at check-in, thereby improving passenger flows at airports.
The use of fingerprint technology to identify passengers is a simple way to solve a pressing problem, that of correct identification.

4.4.3.1 Precise BioFlight

Scandinavian Airline System (SAS) has replaced the traditional paper boarding passes given to passengers on check-in and introduced the Precise BioFlight biometric fingerprint check-in at all of their domestic destinations within Scandinavia (Precise Biometrics, n.d.; Scandinavian Airlines Sverige, 2008). This allows passengers to present themselves at the check-in counter where they place their finger on a fingerprint reader. The passenger’s luggage is scanned and Precise BioFlight links the luggage scan to the passenger's fingerprint. Upon boarding, the passenger’s fingerprints are scanned once again and if the system verifies that both the passenger and their baggage are on the plane, they are free to continue. Upon reaching the destination, the fingerprint information is erased (McGroarty, 2008; Precise Biometrics, 2008a).

This fingerprint recognition system at SAS provides a double back up to verify a passenger’s identity on boarding the airplane. Acceptance of the new check-in system is positive with 98% of passengers claiming that the new system increases convenience (Precise Biometrics, n.d.) and SAS are now looking to expand the system across their entire European network (McGroarty, 2008).

4.4.3.2 miSense

The miSense program was introduced in the UK to improve passenger flow at airports by using biometrics in order to reduce the costs of airlines, airports and border control authorities and to enhance security (Accenture, 2007; British Airports Authority [BAA], 2007). The miSense trials were found to improve airport security by verifying passenger identity more effectively than traditional methods and thereby giving authorities greater control over who crosses their borders without overly increasing the security costs (Accenture, 2007). Airlines such as Cathay
Pacific and Emirates took part in the miSense trials and plans for a cross-border system between the United Kingdom and Hong Kong SAR were in the preliminary stages of development during 2007 (Accenture, 2007; BAA, 2007). In parallel with these negotiations, Hong Kong SAR has had its own version of a registered traveler program called the Automated Passenger Clearance System, or eChannel.

4.4.3.3 eChannel

Hong Kong SAR’s eChannel was introduced in 2004 to increase service efficiency and improve passenger and vehicle processing rates (Hong Kong Trade Development Council, 2004). The program is for all persons leaving or entering the SAR at all points of entry or exit including Hong Kong International Airport, Shenzhen Bay, China Ferry Terminal, Macau Ferry Terminal, Tuen Mun Ferry Terminal and the numerous roads that traverse the border into mainland China (Immigration Department, 2008). eChannel has three different classes of traveler: frequent visitors, students and vehicles (Immigration Department, 2008). eChannel uses the Hong Kong Identity Card as a base and uses fingerprint technology to verify traveler identification at the point of departure or entry via a fingerprint scanner. For drivers, The Automated Vehicle Clearance (AVC) system operates similar to an e-tag system. When a vehicle approaches the clearance kiosk (similar to a toll booth) the vehicles number plate is scanned and the driver’s thumb print is taken for verification. Once this verification is approved, the driver is free to proceed (Hong Kong Trade Development Council, 2004).

4.4.3.4 Express Entry

Developments in biometric applications outside of both North America and Europe include the introduction of an “Express Entry” system designed by global IT and business solutions company EDS at Israel’s Ben Gurion airport. The biometric system for Ben Gurion allows Israeli citizens to be inspected with a simple swipe of a card. The 'Express Entry' solution at Ben Gurion uses a 90-point hand biometric print to validate the traveler’s identity. The
biometric system is processing approximately 150,000 passenger inspections per month (EDS, 2007a).

4.4.4 Biometrics

Since 9/11, airports around the world have had to step up security screening and security systems as well as install hi-tech devices that use iris, fingerprint recognition and other forms of biometric technologies to prevent terrorists and criminals from boarding aircraft and entering the countries (Narita International Airport Corporation, 2006). Biometrics is the analysis of biological data such as a fingerprint, voice, face or features of the eye's iris to confirm an individual's identity (ComSec Enterprises, 2007). As organizations become more security-conscious, the frequency with which biometric-based solutions are used as an avenue of security is expected to increase. Governments and airports around the world are implementing biometric identification as a means to increase security and safety for travelers and citizens (NEC Corporation, n.d.).

For example, the use of biometrics in aviation is primarily through the storing of biometric features on a computer chip, which can then be automatically checked against the features of the passenger. Biometrics enhances passport security in two different ways. First, the microchip is a further obstacle to identification forgery as it is unique for everyone. Second, the chip enhances protection against the misuse of passports by giving authorities the ability to digitally reference the person presenting the passport is the same person to whom the passport was originally issued (Federal Ministry of the Interior, 2005).

The predominant means by which biometrics is improving security is through automated entry procedures at airports; this is done mostly through biometric features stored in passports. Biometric passports are a means of identifying non-citizens at the airport or border. Using biometric features stored in passports is gaining momentum as a method of passenger profiling. Examples of biometric automated entry processes include the German “e-pass”, Canadian/USA
NEXUS border crossing process, the UK IRIS system, the Singaporean Immigration Automated Clearance System and eGate from the United Arab Emirates.

4.4.4.1 e-pass

In 2005, Germany, introduced an “e-pass” passport. This passport holds biometric information via two digital fingerprints, as well as features such as eye colour, height and facial image (Federal Ministry of the Interior, 2005). The “e-pass” is expected to ease passenger flow at immigration controls in Germany due to passengers only needing to swipe their passports. The biometric features stored in the chip can be automatically matched with the person presenting the e-pass. The picture taken at the inspection point must match the image stored in the e-pass (Federal Ministry of the Interior, 2005).

4.4.4.2 Immigration Automated Clearance System

The Singaporean Immigration Automated Clearance System (IACS) program commenced in 1997 (Yan, 2007). The IACS program was introduced to improve the efficiency of immigration clearance at checkpoints through using biometric fingerprint and smart card technologies. The system allows frequent passengers to have an express clearance through immigration (Immigration & Checkpoints Authority, 2009). The IACS is available at Changi Airport. Between 2006 and 2008 the IACS program was revamped into the Enhanced Immigration Automated Clearance System (eIACS) which allowed Singaporean citizens to clear immigration using only their passports. Singaporean citizens who already had their identity cards and their fingerprints, had been registered and stored in the Singapore National Registration database, and have valid machine-readable passports are eligible to use the eIACS (Immigration & Checkpoints Authority, 2009). With the Singaporean eIACS, if a passport number or thumbprint does not match that which is stored within the database at the security gates, the security services can be automatically alerted (NEC Corporation, n.d.).
4.4.4.3 IRIS

The IRIS system from the UK allows registered passengers to enter the UK through automated barriers at certain airports. It makes use of the fact that the pattern of the iris in each person's eye (the colored part of the eye) is unique. The passenger is identified simply by looking into a special camera. The IRIS system uses a photograph of the iris pattern, converts it into a digital code and then compares it with others stored in a secure database. When it matches the captured iris pattern with the corresponding one on the database and the registration is still valid, that person can enter the UK by passing through the IRIS barrier located in the immigration arrival hall. This system operates at Heathrow, Gatwick, Manchester and Birmingham airports (Home Office, n.d.).

4.4.4.4 NEXUS

NEXUS is one of two main border control mechanisms that run concurrently between the United States and Canada. NEXUS is a joint operation between the Canada Border Services Agency (CBSA) and United States Customs and Border Protection (CBP) in order to expedite the border clearance process for low-risk, pre-approved travelers into Canada and the United States while enhancing security (CBSA, 2007a; 2008a). The NEXUS system is a biometric system using iris recognition technology and is used at Vancouver, Toronto, Ottawa, Montreal, Halifax, Calgary, Winnipeg and Edmonton (CBSA, 2008b).

4.4.4.5 eGate

A further biometric system is eGate from the United Arab Emirates. The eGate facility is an advanced passenger clearance system designed to improve passenger traffic flow through electronic screening of passenger data with the help of a smart card (Department of Civil Aviation, 2007). Using fingerprint biometrics, all registered passengers entering and exiting from any airport within the Emirates are automatically processed. The data entry is then linked to a central system for rapid identification and verification (Copybook Solutions Ltd, 2008).
Travelers using e-Gate swipe their Identification cards at the turnstile gate as well as their fingerprints at the touch panel in order to proceed across the border (Dubai e-Government, 2009). The e-Gate system is used at Dubai International Airport and Abu Dhabi Airport (Dubai e-Government, 2009). This system has the potential to reduce the amount of physical security staff required for border control as the e-Gate system provides both a physical security barrier as well as expedited passport and immigration controls (Copybook Solutions Ltd, 2008).

4.5 Discussions

On August 10, 2006 British intelligence prevented a terrorist plot to blow up ten airplanes by detonating common liquids. In response, the Transportation Security Administration (TSA) banned certain carry-on items. In May 2007 TSA unveiled "FIDO," a hand-held scanner capable of detecting liquid explosives inside sealed bottles. Although providing an important layer of security, carry-on restrictions and explosives detecting equipment exemplify why profiling is necessary to safeguard commercial aviation. Reaction-based national aviation security policy focused myopically on objects instead of people is backward looking and flawed, "the equivalent of fighting the last war."

Profiling airline passengers should be a vital part of commercial aviation security because screening for bad people is at least as important as screening for bad things. This thesis explored the theoretical underpinnings of government and private sector profiling systems like CAPPS, CAPPS II, and Secure Flight, along with the Registered Traveler program and examined whether such systems represent effective security measures designed to protect aviation industry from being used in drug trafficking, terrorism, human trafficking any many other crimes. One source identifies three classes of profiling: biometric, psychometric, and sociometric.

a. **Biometric profiling**, the information leading to behavioral prediction comprises human
physical characteristics like the iris, finger pads, structural and kinesic elements of the face, and partially overlapping physiological phenomena that can be detected remotely. Sweating, pulse rate, and respiration are examples of common psychophysiological phenomena.

b. **Psychometric profiling**, involves inferred traits as to human cognition, emotion, motivation, and behavioral tendencies, as well as a plethora of observed traits further describing certain behaviors such as speaking and walking.

c. **Sociometric profiling**, the information leading to behavioral prediction comprises interpersonal, intragroup, intraorganizational, and intracultural aspects of an individual's biological, psychological, and social functioning like academic and work history, criminal record, degree and type of cooperation and competition with other individuals, participation in informal networks, and ethnic identification.

4.5.1 Initial Opposition to Passenger Profiling

As a threshold matter, whether profiling systems can reliably predict who is or is likely to be a criminal was questionable. Some quarters argued that criminals come from every background, and age, sex, ethnicity, education, and economic status are becoming irrelevant considerations for profiling purposes. For example, three of the suspects arrested in the August 2006 liquid-bomb plot were religious converts from London's affluent suburbs, including one man who was the son of an English Conservative Party activist and who loved the movie Team America. Practically, then, identifying terrorists through profiling may be impossible, not merely counterintuitive.

Legally, airline passenger profiling raised constitutional considerations that could not be dismissed simply because more security was needed at the airports. Liberty and privacy were chief among these considerations. Liberty, like life and the pursuit of happiness, is one of the specific unalienable rights. Liberty, in turn, involves privacy or the right to be left alone. Liberty
and privacy are abstractions, encompassing many definitions and evading certain meaning simultaneously.

Opponents argued that most profilers analyze external features, such as physical characteristics, behaviors, or demographics. However, intrapsychic processes may be more robust correlates of terrorist behavior, but are more difficult to identify. Yet, some psychologists even believe that these correlates either do not exist or are irrelevant in analyzing human behavior.

Suspected Islamic Extremists Are Constantly Shifting, (Washington Post, March 12, 2007). With new plots surfacing every month, police across Europe are arresting significant numbers of women, teenagers, white skinned suspects and people baptized as Christians-groups that in the past were considered among the least likely to embrace Islamic radicalism.

Whitlock, et al. notes that no reliable profile of a terrorist may exist as further illustrated by the fact that investigators of the August 2006 liquid-bomb plot suspected that a husband and wife planned to smuggle liquid explosives aboard airplanes using their infant daughter’s bottle. Another more example of terrorism by people considered to be caregivers occurred on June 30, 2007 when several physicians put into action a plot to drive a suicide car bomb into the arrival terminal at the airport in Glasgow, Scotland (Olga Craig, The People Who Cure You Will Kill You, Sunday Telegraph July 8, 2007).

It was generally argued that designing and implementing effective airline passenger profiling systems need not present liberty and privacy, on one hand, and national security, on the other hand, as mutually exclusive policy choices. Privacy, liberty, and security proponents are equally blameworthy in presenting their arguments for or against airline passenger profiling.

There are a number of important objections to positive profiling. The profiling job is extremely large. The total number of entrants in the profiling database will obviously be based on the number of passengers who enroll in the program, but several million or more should be anticipated. Procedures must be implemented and equipment deployed at the airports to ensure
that registered travelers are not significantly slowed in transit because of their profiled status. To achieve this, the airport’s check-in counters must have rapid access to the database. Terrorists will obviously have strong incentives either to masquerade as registered travelers or, failing that, to coerce a registered traveler into becoming an accomplice. It would take only one or two “successes” for terrorists to prevail. This implies that passenger IDs must be virtually foolproof. Moreover, it implies that the conditions for acceptance into the registered traveler program must be sufficiently stringent to weed out all would-be terrorists at the start. And it means either that only those who cannot be coerced become registered travelers or that there is a means to identify people who are acting under extreme duress.

In all cases, these are difficult challenges. Opposition also comes from civil libertarians, who view the idea of the government maintaining comprehensive databases on the general population as contradictory to the rights of individuals for privacy. They take seriously the potential for misuse of those databases for purposes unrelated to security. Moreover, they are skeptical about whether they will really be secure.

While the American Civil Liberties Union’s “get out of security free card” description may be an unfair characterization of a well-structured positive profiling system, the message is clear. If some bags aren’t checked, terrorists will find a way to exploit this fact.

4.5.2 Profiling Initiatives

Crime has always shadowed commercial airline travel. The first documented airline hijacking occurred as early as 1931, when Peruvian revolutionaries overtook a domestic flight to distribute propaganda. Hijackers have since seized commercial airplanes to bargain for the exchange of political prisoners or to escape to a particular destination like Cuba. In contrast, the objective of the September 11 hijackers was to kill Americans and to destroy national icons of American economic, military, and political might. The September 11 hijackers-ten of
nineteen were identified for further security screening by a computer passenger profiling system.

Implementation of passenger profiling in Europe and the USA during the initial stages of its introduction highlighted numerous issues which required authorities to overcome. These issues included racial bias (Siggins, 2002), data security (Swartz, 2004a; 2004b) and access and privacy issues (DHS, 2008a; 2008b). From the literature which was reviewed, these issues can be resolved. For this to be accomplished, adequate safeguards need to be built into the passenger profiling program.

Despite the opposition, literature reviewed in this thesis indicate that introduction of passenger profiling can help to improve an airline or airport’s defenses against unwanted threats, by supplementing existing threat management frameworks. Within the literature, this has been illustrated by the USA, which has introduced several variations of passenger profiling systems over time with various levels of success, in an attempt to increase their own border security levels (Poole & Passantino, 2003; Subcommittee on Aviation, 2002; Swartz, 2004b; TSA, n.d.a).

From Kenyan perspective, the introduction of profiling may be integrated within the existing security framework. This can be done under the main legislative instruments governing aviation security within the country. The Kenya Civil Aviation Transport Act 2013 should be amended to make it clear that, if an airline is requested by Kenyan Customs and Border Protection to provide PNR data on passengers entering Kenyan airspace, the airline must acknowledge the request and provide it. Information accessed under this request cannot be freely disclosed to others outside of those directly needing it. That is, that the information can only be accessed by authorized personnel as a direct result of the performance of their duties.

This inbuilt restriction safeguards the unauthorized access to personal information. Therefore, the implementation of a passenger profiling system within the current security framework in
Kenya can be accomplished. Furthermore, with an increase in the level of security and the technology needed for that to be achieved, comes greater potential for co-operability with other countries that have already instituted some form of passenger profiling strategies within their aviation security framework.

The USA and the EU have been formulating a framework for the transfer of passenger data between these two regions since 2003 (Commission of the European Communities, 2003; EU and U.S. agreement, 2004; European Commission, 2004; Meller, 2003). An agreement was finalized between the USA and EU to allow the free flowing of PNR data while maintaining data protection during 2006 (Deutsche Welle, 2006, October 6). Under this agreement, shared information from the PNR records are held within an airline’s reservation system (European Communities, 2004). A major obstacle towards this agreement had been the issue of data privacy.

European privacy legislation is exacting when relating to access (Swartz, 2004b). Concerns were raised about the possible dilution of those standards should a reciprocal agreement of access with the USA be enacted. As this potential sharing of passenger information runs counter to those privacy laws (Creedy, 2004, December) and would not give EU citizens any option for redress against unlawful targeting in the USA (Swartz, 2004b).

Talks between the USA and EU stagnated on this point. Whilst there remain concerns over the limits on data retention and the right of access to that information (European Communities, 2004), the agreement was accepted. These latest developments in Europe and the United States can prove to be a precursor to any potential changes in Kenya. As such, the introduction of measures similar to the US-VISIT or Privium program in the Netherlands cannot be ruled out.
4.5.2.1 Registered Traveller Programs

The most common examples of profiling to come from the literature were in the form of registered traveller programs. The literature illustrated multiple examples of registered traveller programs, in various forms, operating around the world. With this in mind, Kenyan authorities may need to evaluate alternate or less intrusive avenues, should they choose to introduce a profiling program in Kenya. The simplest method may be to access an existing airline’s passenger database.

Using existing data held in current frequent flyer programs to create a registered traveller scheme may possibly be achieved with minimal disruption to passengers. This information would need to be validated at the travel agency each time the passenger books an air ticket. If bookings are done over the internet, then an extra step in the internet booking process may be added in order to include a note relating to the update of personal information in the airlines’ frequent flyer database. The information would be verified by a government agency. If the information is correct, the passenger is accepted into the program, if it is incorrect, then they are declined entry into the program.

Once accepted, when the passenger presents for check-in, they would swipe their frequent flyer card through a card-reading device at the counter. The card would be verified and the passenger would then proceed to a dedicated screening area before being forwarded to the aircraft-boarding gate. The use of this system would negate the requirement for lengthy security clearances. Similar to an individual’s credit card being recognized and read in foreign countries, a passenger’s frequent flyer membership card could be recognized and read at multiple airports. However, this would only be valid if a passenger was flying with partner airlines.

This proposal is being used by the Australian airline Qantas, which announced that it is introducing an enhanced boarding process for its silver and platinum frequent flyer members. This new system employs smart-card technology, allowing passenger’s frequent flyer cards to
act as a boarding pass. Passengers will “swipe their frequent flyer card on a reader and head to a simplified baggage drop, or straight through the security process to their departure gate or Qantas lounge, (Joyce, cited in O’Sullivan, 2009, November 21).

If the use of frequent flyer data is unfeasible, there are other options available such as biometric identification. However, the access of data accumulated for these programs remains a strong point of opposition, especially the area of data reciprocity.

4.5.2.2 Biometrics

The introduction of biometric check-in procedures (either in an ePassport or in fingerprint boarding technology) would be intended to address two industry-wide problems. One of these is increased security and the other is excessive time delays during check-in. Precise Biometrics consider fingerprint boarding as the future of aviation security because it provides both an additional identification measure and the ability to reduce check-in waiting times. This reduction is accomplished via the use of wireless mobile phones (Precise Biometrics, 2008b). This biometric solution enables fingerprints to be both stored and matched inside a passenger’s mobile phone SIM card. When the passenger uses the mobile phone at the gate to check-in, the fingerprint information is transmitted to the SIM card and matched against the reference fingerprint inside the card (Precise Biometrics, 2008b). Biometric solutions are being used at Amsterdam’s Schiphol airport to examine how the use of mobile phone check-in affects passenger-waiting times at check-in and boarding (Precise Biometrics, 2008b).

Passengers can book a flight, select a seat and board the aircraft all through their mobile phone (Armstrong, 2008). If the passenger’s telecommunications carrier supports quad-band frequencies and the passenger has a quad-band compatible mobile phone, a bar-coded itinerary is e-mailed to their phone. Upon reaching their departure gate, machines located in front of the security screening point read the bar code directly from the mobile phone (Japan Airlines, 2005). The passenger is then free to proceed to the aircraft. Passengers using the “Touch & Go” system from JAL do not need to queue at an airport check-in counter or to use a self-check in machine. This system is being used in 44 airports across Japan (Japan Airlines, 2005). This is contrasted with the ANA system where passengers are still required to hold a printed boarding pass from airport security (Armstrong, 2008). Using any form of profiling system brings with it vulnerabilities that may or may not have been considered during the developmental states of the program.

4.5.3 Vulnerabilities

Experiences in countries such as the USA and Israel have shown that passenger profiling is fraught with vulnerabilities (Alberto & Bogatz, n.d.; Persico & Todd. 2005; Weitzer & Tuch, 2002). One such vulnerability experienced in the USA is discriminatory screening. Opponents of profiling claim that it is an ineffective security measure resulting in illegal discrimination and violation of individual rights (Alberto & Bogatz, n.d.).

While profiling has been outlawed as a technique for USA border control, it may still be used in circumstances where national security is thought to be at risk (Department of Justice, 2003). This outlawing was brought about because of concerns over the assumption that people of one racial or ethnic background are more liable to commit offences than people of other races or ethnicities (Department of Justice, 2003). This point is reinforced in research by Weitzer and Tuch (2002) who found that people who have been stopped by law enforcement based on their race, view profiling as a widespread practice and expressed dissatisfaction with society.
This brings to light profiler bias. One issue that the CAPPS II system in the United States had to overcome was bias, which had civil libertarians resentful over its use. Even though better targeting may decrease the incidence of potential criminal activity, more proficient detection techniques such as profiling does not necessarily equate to a decrease in the overall crime rate (Persico & Todd, 2005). Research conducted by Persico and Todd (2005) discovered that improvements in profiling techniques reduced the probability of racial bias and thence reduced the likelihood of apprehending passengers on false grounds.

A further issue is that individuals with their own biases administer the profiling program. Therefore, the development of a profiling “target list” and the classification of attributes sought by profilers for that list, is difficult. The isolation of attributes or traits shared by offenders is a formidable task (Hudson, 1999). Post (1985) noted that behavioural scientists researching the psychology of individuals drawn to violent behaviour could not identify a unique “terrorist mindset”.

Post (1985) also discovered that people who have a motivation to enact violent behaviour tended to be from a wide range of cultures, nationalities, and ideological causes, all strata of society, and diverse professions. Laqueur (1987, p. 129) holds that the search for a “terrorist personality” is fruitless as individuals seeking to disrupt society, can emerge from widely divergent spheres of national and socio-cultural backgrounds, contexts, and goals. This then strengthens the hazards of making generalizations and attempting to develop a profile of individuals and of groups (Hudson, 1999).

It is difficult to reach agreement on a quantifiable list of attributes containing all the absolutes in terms of personal behavioural attributes that potential criminals may have. This is because when dealing with humans, errors are always made and judgements on what is and what is not classified as a threat can come down to the individual’s personal perception of what constitutes a threat.
Furthermore, a person who “fits the profile”, can potentially circumvent security checks by planting an incendiary device such as an explosive device or similar, on someone who does not fit the profile while in areas of high passenger traffic movement areas such as toilets or airport gates. Respondent comments to such vulnerabilities were inconclusive, with some stating in-principle support for profiling, while others claiming that it is fraught with issues such as bias and can be altered. Profiling is under-inclusive for this very reason. A profile alone does not establish suspicion (Alberto & Bogatz, n.d.). However, it can alert authorities to the potential for criminal activity. All of these vulnerabilities are influenced by an individual’s perception of how they fit within the world around them. How people perceive profiling is an important element in understanding its faults.

4.5.4 Risk

Risk perception plays an integral role in the decision-making process of passengers (Cho & Lee, 2006). Risk perception concerns the psychological and emotional aspects that can affect a person’s behavioural stance of a situation (Slovic, 2000). Risk perception is influenced by several factors including age (Furnham & Saipe, 1993; McFadden & Towell, 1999), gender (Reason, Manstead, Stradling, Baxter, & Campbell, 1990), level of confidence (Weinstein, 1980) and personality traits (Deery, 1999). Risk perception is particularly important after an aviation incident because of the potential for the public to have a negative emotional reaction to the prospect of flying.

According to Dowling and Staelin (1994), risk perception motivates the decision maker to engage in a particular behavioural manner. For example, a passenger’s perception of risk towards flying can be higher after an airline accident because of perceived personal safety vulnerability in such circumstances.

This is intensified by a passenger’s inability to have any control over their situation whilst in an aircraft cabin (Parker, 2006). This is due in part to the knowledge gap between the pilot and
passenger and the tight confines of the aircraft cabin, through which the transaction of travel takes place. Passengers are therefore inherently dependent upon the pilot for safe passage, and as such are vulnerable to any threat that may try to disrupt that safe passage. If there are any threats to the aircraft whilst in flight, the pilots should be made aware of the situation so that they can then decide on a relevant course of action (Berkley & Ala, 2001).

Passenger risk perception in relation to aviation, can be likened to what Grose (1995) identifies as the subconscious concept of „implicit trust” that a passenger places in a pilot once on board an aircraft. Parker (2006) claims that the lack of control that passengers have once in an airplane, can affect their perceptions of safety. In order to alleviate this, research has shown that passengers engage in an extensive information search to lessen their fears when flying (Dowling & Staelin, 1994; Srinivasan & Ratchford, 1991). This statement supports Dowling and Staelin’s (1994) and Srinivasan and Ratchford’s (1991) research that people manage risk by increasing their knowledge base in order to gain a better understanding about a given situation so that they can come to a satisfactory solution to that given situation.

Goodwin, Willson, and Gaines Jr. (2005) noted in their investigation of terror threat perception in the United Kingdom that the general perception of any possible threat were predictors of behavioural change and had a bearing on decisions made by the public. This is supported by Fischhoff et al, (2004) who found there was a change in the behaviour of the travelling public after 9/11, with people cancelling their travel plans, resulting in a sudden downturn in travel activity post 9/11.

Rundmo (2000) claims that risk perception is a subjective assessment of the likelihood of experiencing a negative outcome while being exposed to a hazardous situation. From an aviation perspective, the likelihood of a negative outcome such as terrorism or acts of air rage could be lessened by the introduction of passenger profiling. Thus, reducing airline and passenger risk (Ghobrial & Irvin, 2004).
Literature review supported an in-principle application of extra security measures, most passengers are willing to undergo further security checks. However, the passengers are divided over the possible privacy issues that may arise.

4.5.5 Privacy

The privacy of passenger’s personal information emerged as a major point of discussion throughout a large portion of the literature (Barnett, 2004; Curry, 2004; Ghobrial, & Irvin, 2004; Gould, 2002; Swartz, 2004a) and during the data analysis process. Concerns are mainly centred on the requirement to access personal information in order for any passenger profiling system to be a success.

Personal information is considered as any kind of information that can be used to identify a person including name, address, telephone number or date of birth (Allens Arthur Robinson, 2008). Public unease over government access to private information has been a long-standing issue with profiling programs in the USA (Swartz, 2004a; 2004b). Respondent’s survey comments illustrated that if people have nothing to hide, then why should they oppose such measures.

To counteract any potential public unease over the accessing of private information, any agreement that Kenya may enter into needs to adhere to the privacy demands. Privacy rights prohibit government officers from collecting, using or disclosing private information except in the performance of their duties and obliges them to take all reasonable steps to prevent any form of unauthorized access, modification or disclosure.

Information that may be included in a potential passenger profiling system is illustrated below. The data is based on the data reciprocity preliminary agreement between the USA and the EU (Council of the European Union, 2007).

Information gathered from passengers for security profiling
1. Full Name
2. Home Phone Number
3. Destination
4. Medical Condition (if any)
5. Date of Birth
6. Foreign Address
7. Onward Destination (if any)
8. Gender
9. Passport Number
10. Foreign Phone Number
11. Date of Arrival in Foreign Country
12. Income
13. Home Address
14. Place of Work
15. Date of Departure of Foreign Country
16. Frequency of Travel
17. Work Phone Number
18. Last Visited Destination

The use of similar elements in any potential Kenyan system may enhance system interoperability between Kenya and other countries to allow easier flow of passenger information for security purposes.

The use of these eighteen elements as part of the data collection process for a passenger profiling system allows it to be interoperable with other profiling systems around the globe. As mentioned in the above, similar elements are used in passenger profiling systems used in the USA and EU. Additionally, elements relating to date of departure and arrival, onward destination, frequency of travel and last destination, can give authorities a firm grasp on the
movements of the passenger and whether or not their movements are via destinations considered suspect. This does however, open the profiling system to privacy issues.

There have been privacy issues in the USA and EU centered on the security of the data once it has been accessed. Evidence exists that data security is a major obstacle to the development and implementation of a passenger profiling program (Alberto & Bogatz, n.d.; Data Protection Working Party, 2004a; 2004b; European Communities, 2004).

Further, the right of access to data remains an area of concern to authorities (EU and U.S. agree on air traveller data, 2004). This has emerged during the literature review as a point of contention in the development and implementation of passenger profiling programs. This is mostly due to the private nature of the information being accessed and the perception of an invasion of a passenger’s personal privacy. This issue was of paramount importance in the agreement on PNR data transfer between the USA and the EU. Europe was hesitant in agreeing on a PNR transfer because it was unsure which USA organizations had right of access to the data they were seeking (European Commission/US Customs Talks on PNR Transmission, 2003; Swartz, 2004b).

Limits placed on the usage and storage of information gathered and accessed needs to be addressed due to the potential for exploitation of such information for purposes other than for which it was originally intended. One possible solution would be to include a disclaimer within the system. For example, when an airline ticket is booked, it may be advisable to have a clause in the ticket conditions. This clause would note that information gathered in the process of booking may be used by the relevant authorities to gain a “picture” of the traveller and use that picture to gauge the security risk of that passenger to the overall safety of the flight.

In line with issues of access to data, the point of editing that data if it is outdated is another matter. Concerns have been raised in the USA over editing obsolete data. Instances have
transpired where citizens where wrongly apprehended by law enforcement agents because they did not have up-to-date data on the person they arrested (Cole, 2003).

The two areas of privacy and security safeguards are related to a further issue, that of data sharing. Data sharing is done in order to ascertain if there are any passengers on board who may be of interest to the authorities, or pose a risk to the safety of the flight (Swartz, 2004b). Data sharing in this instance is the transference of private passenger information between two government authorities, for the purposes of a PNR transfer. For example, PNR data collected at the departure point and electronically transferred to the arrival destination before the arrival of the passengers is done to identify passengers who may be of interest to authorities, or pose a risk to the safety of the flight. The type and usage of the data is of most concern to privacy advocates (Swartz, 2004b).

The issue of data sharing is important. There have been attempts to curb the amount and type of data shared between organizations. In terms of passenger profiling, it is the number and type of items requested that caused most concern amongst the travelling public (Commission of the European Communities, 2003; Data Protection Working Party, 2004a; 2004b; Swartz, 2004b). In order for a passenger profiling program to be accepted, issues surrounding data sharing need resolution.

4.6 Profiling For Crime Reduction

Based on the literature analysis on proactive crime prevention and routine activity theory, opportunity for terrorism targeting airports and aircrafts can be reduced by increasing the passenger profiling measures. A profile of the typical attack targeting an airport can be constructed. Terrorist attacks against airports are likely to be perpetrated by domestic terrorist organizations, which implement suicide tactics and explosives during an attack and are less likely to strike on a given day. Attacks are successful and therefore opportunities to commit terrorism are present which can be reduced. Explosives are likely to be used during an attack
on airport because they are relatively easy to use and can be employed by any number of offenders (Ross & Stohl, 2014). The expected significance of suicide would suggest that offenders are likely to not care about being caught or killed during an attack; thus, the level of profiling will have to be higher to reduce the damage from an attack since an offender is not as likely to be deterred by the risk of getting caught.

Terrorist attacks on aircrafts having a relationship with the elements of routine activity theory finds some support. International terrorism has a positive, significant relationship with attacks against aircrafts. This is likely because aircrafts are highly symbolic targets and are also mobile, which can bring an international target into a terrorist’s awareness space. Success and explosives have significant, negative relationships with attacks targeting aircrafts. Success being significant and negative is particularly important because it implies that aircrafts have a higher level of risk than airports.

The significant elements of routine activity theory will differ for attacks against airports and aircrafts because there are differences in the target types, is supported. This is particularly important because the expected results indicate opportunity reduction solutions should be directed toward airports and not aircrafts.

Concentrating on methods which reduce the likelihood of explosions will be much more effective for attacks against airports than attacks against aircrafts. Another key difference is that airports are more likely to be attacked by domestic terrorist groups rather than the international groups, which are significantly more likely to attack aircrafts. Related to this is the interesting finding that suicide tactics are more likely to be used by terrorists attacking airports rather than aircrafts, which this study has established tends to be domestic groups. This finding tends to be counter to many mainstream media ideas of who perpetrates terrorist attacks at airports (Jenkins & Godges, 2011). Attacks against aircrafts did not find a significant relationship with time.
The results show bombings or other explosives are the most likely method of attack at an airport. The literature offers some opportunity reduction solutions aimed toward preventing this specific type of attack. One method suggested by situational crime prevention is to use place managers (Clarke, 2008). The use of place managers is to both discourage terrorists from planting explosives as well as to have more eyes to spot suspicious activity. A popular method is using place managers in airports or aircrafts is the use of Closed Circuit Television Cameras (CCTV). Research has shown the effectiveness of CCTV depends upon how it is used (Farrington, Gill, Waples, & Argomaniz, 2007; Keval & Sasse, 2010; McLean, Worden, Kim, 2013). Law enforcement must be constantly monitoring CCTV in order to be able to respond in time to stop a terrorist attack or any other crime in an airport (Keval & Sasse, 2010). Also, the number of screens a single operator monitors will impact the success of CCTV in preventing terrorism (Stedmon, Harris, & Wilson, 2011). If an operator is monitoring too many cameras, then it is more likely something will be missed (Stedmon, Harris, & Wilson, 2011). The amount of space covered by the cameras will also make a difference (Stedmon, Harris, & Wilson, 2011). If there are large gaps in the CCTV coverage, then there will be more opportunity for a terrorist to move through the airport or plant an explosive.

Another common measure used in airports, which also relies on place managers, is asking passengers to report suspicious activity (Clarke & Newman, 2006). However, Clarke and Newman (2006) argue the general public cannot be relied upon to report suspicious activity. Much more reliance should be placed on airport and airline employees to notice and report suspicious activity; the general public might be alert to look out for suspicious activity but are still less likely to report an unattended bag (Clarke & Newman, 2006). An innovative guardianship measure from the United Kingdom that could reduce opportunities for terrorism includes instituting a Plane Watch program (Essex Police, 2013). The Plane Watch program was developed in the United Kingdom by the Essex Police to reduce opportunities for terrorism (Essex Police, 2013). The idea behind the program is that volunteers who like to watch the
planes land and take off would be given special access to the airport, after a background check, and would report any suspicious activity they see to the authorities while participating in their hobby (Essex Police, 2013). The program is free for the participants and has only minimal costs for the airport (Essex Police, 2013). It is unclear how effective this program is since it has not been evaluated, but it is a low cost solution. Whether the level of awareness that has been increased is sufficient to deter terrorists remains to be seen.

A proactive crime prevention measure that increases formal surveillance is the use of profiling. This technique attempts to identify offenders before a crime can be committed. The form of profiling perfected by Israeli aviation security relies on behavior pattern recognition (Seymour, 2005). This technique attempts to determine if an individual is lying or attempting subterfuge (Seymour, 2005). Characteristics profilers look for in behavior pattern recognition include excessive sweating, flushing of the skin, lack of eye contact, bulging veins, or chapped lips (Seymour, 2005). Seymour (2005) argues that profiling must be conducted by humans and software such as the Computer Assisted Passenger Prescreening System (CAPPS) should not be relied upon. Other authors also caution that care is to be used when profiling for suspicious behavior (Epstein, 2013; Fulwood, 2013). There is a great deal of disagreement about whether profiling actually works and there is a great danger in racially profiling rather than behaviorally profiling (Seymour, 2005; Epstein, 2013; Fulwood, 2013).

As previously mentioned, Israel has had success in the use of behavioral pattern recognition (Seymour, 2005). Other obstacles to profiling include the practicality behind trying to screen a massive number of people in a small time frame (Kydd, 2011). Even when rational profiling schemes are created, the ability for them to be practically implemented is lacking (Kydd, 2011). Ultimately, while profiling can increase formal surveillance and reduce the opportunity for terrorism, it should be used with caution (Epstein, 2013; Fulwood, 2013).
Current opportunity reduction measures include explosive detection systems (EDS) and explosive trace detection (ETD) systems (Committee on Assessment of Security Technologies for Transportation National Materials Advisory Board Division on Engineering and Physical Sciences [National Research Council], 2007). At the 438 commercial airports in the United States, there are more than 1,100 EDS and 6,000 ETD systems deployed (National Research Council, 2007). These systems were rapidly distributed after 9/11 and as a result, they are stand-alone detection systems which only interact with the direct operator (National Research Council, 2007).

This type of system at security checkpoints has high false-alarm rates, slows lines at checkpoints, and creates excessive demands on the individual operators (National Research Council, 2007). The Committee on Assessment of Security Technologies for Transportation National Materials Advisory Board Division on Engineering and Physical Sciences (2007) argues that only through data fusion can these systems adequately detect explosives and other threats. Data fusion is the combination of data from multiple detection systems which can be used to find patterns and make more-informed decisions (National Research Council, 2007). This type of data integration can identify patterns of weakness in airport security which would otherwise be exploited (National Research Council, 2007).

In addition to weaknesses within the security screening process, perimeter security and the entrances of terminals have been neglected (Kaufmann, 2013). Crime Prevention Through Environmental Design (CPTED) is an ideal method for securing the airport terminal and security perimeter (Jeffery, 1971). Although the primary areas of concern have been commercial airports and aircrafts, the use of general aviation in terrorism should also be considered (Syzliowicz, 2004). The less secured small public or private airports and aircrafts also need to be taken into consideration because a plane of any size can be turned into a weapon; the security needs of these types of airports can be different from larger airports and thus should be treated differently (Syzliowicz, 2004).
To control access to the facility, an airport can regulate the control of foot traffic through use of shrubbery or a well-designed road and parking system (Hook, 2013). This is particularly effective for smaller airports and can help to reduce opportunity for attacks against the airport using simple methods (Hook, 2013). Another way to control access to airports is to install motion sensitive lights on entrances that are less used (Hook, 2013).

The motion activated light can temporarily blind an intruder but will also draw the attention of airport workers and bystanders (Hook, 2013). This can be done by securing a natural line of sight of the entrance for airport employees (Hook, 2008). By placing either a receptionist or the check-in desks within view of the front doors, employees will be immediately aware if something, or someone, suspicious enters (Hook, 2008). Also, to reduce the damage caused by explosions placed in trash cans, airports should invest in bomb resistant trash receptacles (American Innovations, 2010). These trash receptacles look and act like normal trash cans, but when a bomb is placed inside, instead of exploding, the receptacle will funnel the blast upward to minimize the damage caused by the bomb (American Innovations, 2010).

In addition to techniques which can be implemented to reduce opportunities for crimes and terrorism against airports and aircrafts, current policies implemented at these targets must also be evaluated for potential terrorist opportunities. For example; in the United States, opportunity for terrorism exists via the Transportation Security Administration’s pre check program. This program is designed to allow select travelers departing from U.S. airports on specific airlines to move through security with minimal inspection (Transportation Security Administration [TSA], n.d.). A traveler which participates in the TSA pre-check program receives a Known Traveler Number (KTN) and will have an indicator on their boarding pass (TSA, n.d.). Members of this program do not have to remove their shoes, laptops, liquids and gels, belts, or light jackets when going through the security screening process (TSA, n.d.). To become a member, an individual simply needs to complete the application, provide identification and fingerprints at an enrollment center, and pay the $85 fee (TSA, n.d.). U.S. citizens, U.S.
nationals, and lawful permanent residents are eligible for the program (TSA, n.d.). An applicant may be rejected if they provide false or incomplete information on their application, have violated transportation security rules, or have a disqualifying criminal offense or other factors (TSA, n.d.).

Factors which may disqualify an applicant from the program includes information from Interpol or another international source, being listed on a government watch list, foreign or domestic imprisonment exceeding one year, or other information deemed relevant by the TSA (TSA, n.d.). Although a thorough background check is conducted, if an applicant has not been previously convicted of a crime or suspected of terrorist activity, then there is little that would prohibit him or her from becoming members of the program. This program creates opportunity for terrorist attacks against airports and aircrafts. Terrorist organizations need only to recruit members who have no previous criminal offenses or extremist ties to smuggle in banned weapons. While both the passenger and the carryon luggage still receive minimal screening, as demonstrated by the tests conducted by the Department of Homeland Security (Bradner & Marsh, 2015), it is still possible TSA will miss the contraband weapons. Whenever an individual manages to circumvent the security system designed to protect the airports, airlines and the people who use them, the question asked is normally why countermeasures failed. And yet the real problem lies in the determination to screen everybody in exactly the same way using technologies that are not fit for purpose.

Umar Farouk Abdulmutallab, the 23-year old alleged perpetrator of the 2009 Christmas Day attack, should have been identified as a potential threat to the flight both in Lagos and again in Amsterdam. Here was a passenger who had bought an expensive ticket in cash in a country different to that of his port of embarkation or his intended destination, was traveling without any checked luggage for a two-week trip over the Christmas period, and about whom some agencies, and his father, had security concerns. It is not rocket science we need; it is the deployment of common sense.
Regrettably, regulators are loath to implement international profiling standards that would screen different passengers in different ways, for fear of being branded politically incorrect. Profiling is a risk analysis of a person or situation carried out by a trained, streetwise workforce. In terms of passengers, the aim is to analyze their appearance and behavior, along with their travel documents, and determine to what extent they meet our expectations for international air travel. The key advantage of profiling is that it responds to future threats as well as to those of the past and enables us to then select the right technology to screen passengers with. We are not going to ask all passengers to undergo a through-body X-ray, however safe such technologies are, but we could use the technology to screen those we have concerns about.

Detractors of profiling claim that decisions will be racially motivated, that we will start picking on young Asian men and that all Muslim passengers will be treated unfairly. Yet, the best examples of profiling actually working have identified people who do not meet such a stereotype. Anne-Marie Murphy, a pregnant Irish woman identified as a potential threat to an El Al flight in 1986, is the best example and she certainly did not fit the terrorist stereotype. As a result, the 1.5 kg Semtex-based device concealed in her bag was identified.

The limited degree of profiling that is currently done has been proven to work, when it is properly applied and enforced by trained staff. Richard Reid, the “shoe-bomber,” was identified as a possible threat on 21st December 2001 and refused boarding; he returned the next day and managed to board. The Chechen Black Widows responsible for the downing of two Russian airliners in 2004, each carrying explosive charges on (or possibly in) their bodies, were initially refused boarding. They paid bribes to be accepted, with tragic results.

It is up to security trainers to ensure that profiling decisions are based on logic rather than race, religion or skin color. In any case, aviation security is about preventing perpetrators of all acts of unlawful interference with civil aviation, such as unruly passengers, criminals and asylum
seekers, not only terrorists, from boarding aircraft. Employers, meanwhile, will have to ensure that the screeners they employ have the requisite skill-set with which to perform their duties.

Profiling is subjective and profilers are human beings subject to making errors of judgement. Indeed, Abdulmutallab had been through a degree of profiling in Amsterdam on Dec. 25 2009; whoever failed to identify him must have been either in a Christmas frame of mind or incapable of identifying the most obvious of documentary signs. Accordingly, profiling is not a substitute for screening, rather a requisite addition to the security process.

With this in mind, we need a system whereby a human determines which screening methodology should be applied to each passenger. Most people who look and act the part, as most people do, of the ‘normal’ law-abiding traveler would be subjected to standard screening, ideally without even having to take off their shoes or belts or dispose of any liquids. Those passengers whose intent is indeterminate may face questioning or screening using millimeter wave-based solutions, whilst those who we have genuine concerns about could undergo passenger X-ray or even be denied boarding.

With the current terror threats from Somali’s Al Shaabab group, there is an urgent need for Kenya to seize the opportunity and set about replacing the antiquated approach to aviation security. Kenya needs to look to the future and start to consider the unthinkable chemical or biological weapons attacks, internally carried devices, and devices infiltrated onto aircraft by airport workers. Focus on the workers is informed by the disappearance of EgyptAir flight MS804 after its departure from Paris which raised more questions about the need thoroughly profile employees too.

The predominant methods of introducing passenger profiling systems that Kenya can learn from have been via the implementation of registered traveller programs and the introduction of biometric identification methods at airports. The Israel model at Ben Gurion seems to be very
successful and the kind of model that we can learn from even though it faces opposition from various human rights bodies.

This chapter has concluded that data sought from secondary sources answered the research question, “Should Kenya use passenger profiling as a means of improving aviation security?”, with a mixed response. Data do support the acceptance of increased security measures. However, data also illustrated areas that concern passengers regarding profiling systems, not least of which is the inability to define a definite set of traits that are applicable to all potential offenders, which can then be used for precise targeting and apprehension. Additional issues centered on potential breaches of privacy and the ability of the information to be accessed and doctored for use outside of the scope of the passenger profiling program.
5 Summary, Recommendations and Conclusion

5.1 Summary

The after-effects of 9/11 brought about a significant change within the air transportation industry, with direct repercussions on airline profitability (ICAO, 2004). One avenue followed by governments to reduce the threat of such actions in the future included forms of passenger profiling. The aim of this research was to assess the need for passenger profiling in Kenya as a means of improving aviation security levels at airports and whether or not passenger profiling should be introduced to the travelling public. This research was conducted by examining the relevant academic and industry literature on the topic. The research focused on answering the question of “Should Kenya use passenger profiling, in its various forms, as a further way for authorities to increase aviation security?”.

This research has looked at the literature relating to forms of passenger profiling that are currently in use around the world. Literature Review highlights the various approaches to passenger profiling used as an avenue of increased security within the global aviation industry, as well as discussing the procedures and practices available to authorities to introduce passenger profiling. These included PNR access, the introduction of registered traveller schemes and the use of biometric identifiers as part of border control. The research provided a solid understanding of the issues surrounding the introduction of passenger profiling programs and how they have been overcome outside Kenya.

Numerous issues were identified through the introduction of passenger profiling systems in a number of countries. Whilst the results indicate that passengers do consider it safer to fly since the introduction of stricter security measures, they are also unsure as to the need to introduce further measures such as passenger profiling. The most prevalent issue that arose was that of access, storage and use of a passenger’s personal information gathered for the profiling program.
Other issues identified were the inherent vulnerabilities of passenger profiling systems to operator bias and the risk of passenger data being utilized for purposes other than those intended. It was discovered that this unease was in part due to the lack of trust that the travelling public have with the authorities who would be administering the program.

Further areas of concern from respondents involve the proliferation of registered traveller programs and the introduction of biometric identification methods at airports, as well as the inability of authorities to define a common set of traits, applicable to all potential offenders, to be used for precise targeting and apprehension. Additionally, information relating to the level of security at various international airports suggest that all of the airports were perceived as facing serious security threats.

5.2 Recommendations

Protecting the world’s aviation system demands a high level of vigilance because a single lapse in aviation security can result in thousands of deaths, destroy equipment worth hundreds of millions of dollars, and have immeasurable negative impacts on the economy in billions of dollars, and the public’s confidence in air travel. The terrorist attacks exploited weaknesses in US. aviation security on September 11, 2001 and did indeed produce the catastrophic results. Immediately after the attacks, security issues rose to paramount importance in the nation’s policy agenda. The only two effective antiterrorism countermeasures implemented after 9/11 were strengthening cockpit doors and passengers learning they need to fight back. Despite general agreement on what aviation security entails and the goals of an aviation security system, public controversy abounds on how to regulate and provide this important activity.

If airplanes and passengers, as well as property and people on the ground, are to be protected, potential perpetrators of aviation terrorism and other criminal activities must be prevented from breaching security checkpoints and gaining access to “secure” airport areas and to aircraft.

Given the interconnectedness of the air transportation system, a sufficiently high level of
security must be provided throughout the entire system. Flexibility to respond quickly to new information about aviation security threats is a must.

The hardening of the cockpit doors and changing the protocols for hijacking has made it harder for terrorists to get weapons on board an aircraft and take control of it. The Airport Infrastructure and Aviation Security markets are expected to continue to grow due to a number of factors. Rebounding air traffic growth across all regions, post-9/11 security concerns, and an expected doubling or tripling of air traffic over the next 20 years are major contributors to this upward trend. Although constrained by regulations at multiple levels, airport authorities will need to expand capacity to keep up with current and future demand. Moreover, evolving safety and security needs both in Kenya and throughout the world will ensure long-term viability of the market for aviation security technologies.

The analysis in this thesis recommends the use of proactive security measures which are situational depending on the threats faced by the airport or airline. Aviation passenger profiling is a perfect recommendation for the current situation of constant terror threat. Profiling is also proactive since it attempts to prevent the crime before it actually occurs. To enhance aviation security and meet the current security challenges, this thesis recommends the use of passenger profiling in addition to the existing screening techniques in Kenyan airports. The use of passenger profiling should however come with stringent measures to ensure the information is not used for the wrong reasons and that people are not profiled based on their ethnicities.

5.2.1 Future Study Areas

5.2.1.1 Radio Frequency Identification

With fingerprint check-in being applied by various carriers, there is a wider move by the global aviation industry for greater involvement of technology in passenger check-in. This includes Radio Frequency Identification (RFID), wireless technology, and mobile phone check-in and
locator ability. Radio frequency identification is a form of wireless technology that employs radio waves to identify people and objects.

Research has shown that the use of RFID technology within aviation is predominantly for baggage and vehicle tracing (making up 80% of all usage between the two of them) (Harrop, 2006). Its use within aviation security could encompass such things as movement monitoring via a mobile phone trace locator through wireless portals within the terminal. Mobile phone check-in and tracking is currently used at Copenhagen airport and by Air New Zealand. The introduction of RFID can be beneficial in two ways. It can be integrated with fingerprint technology currently used during the check-in process by some airlines, and secondly if a passenger fails to board the airplane, then their luggage is removed from the airplane as per normal practice.

5.2.1.2 Huduma Number Cards

The recent rapid uptake of profiling measures such as biometrics and registered traveller programs across the globe and especially developed world has brought to light related areas of possible future research in relation to profiling, including the possible introduction of national identity cards. National identity cards are already in place in countries such as Hong Kong, Portugal and Thailand. Likewise, the United Kingdom introduced voluntary biometric identity cards for foreigners in November 2008, with mandatory identification cards for all citizens from 2012. In Kenya, calls for a national identification card, titled the “huduma number” in the last few months is a matter of interest.

Further research is needed in this area as the huduma number cards may not only simplify the application of a passenger profiling program by having all the information in one easily accessible place, but could also allow authorities to crosscheck information a lot quicker and make it more difficult for people who wish to commit any crime to be anonymous. This is
because all the information about a person will be held in one location, accessible by all departments so the ability to falsify information is reduced.

The huduma number cards should be issued to all those visiting Kenya and all Kenyan nationals. More study needs to be done on possibility of implementation.

5.2.1.3 Regional Interoperability

Passenger profiling also has the potential of enabling Kenya to be part of the broader approach in strengthening the global aviation/transportation industry. Kenya’s aviation security network could possibly be incorporated into a more pan-continental approach using profiling and advanced passport identification methods as the tools of integration.

The integration of Kenya’s security framework into a more regionally orientated one can broaden the fight against criminal activity, not only in the aviation sphere, but also in other areas of both law enforcement and border protection through data integration. One avenue for the enhancement of regional interoperability could be the use of radio frequency identification. This can be implemented through the already existing regional bodies like the East African Community and African Union.

In summary, respondent comments from this thesis research indicate that there is a mixed reaction to passenger profiling. On the positive side, profiling is thought to increase security, with respondents willing to undergo further security checks. Conversely, there are concerns over the amount of data and information that would be needed to implement the program and the potential social implications of moving towards the general monitoring of people’s movements.

Therefore, regardless of global industry trends showing an increasing awareness and usage of forms of passenger profiling, should Australian authorities introduce security profiling into the
Australian aviation system, further research is required of the options available to authorities so that a more “rounded” view can be obtained.

This extended research can be used to assist authorities in the decision made regarding whether or not to implement profiling as a further security measure, can balance the requirements of industry with the social and political concerns of the travelling public.

5.2.1.4 Legislative Requirements

Legislative tools within Kenyan aviation industry align Kenya’s aviation security framework with the global standards set by ICAO. These Acts and Regulations are the guidelines as to how aviation security within the country is to be administered. The overarching security legislation that governs aviation security in Kenya is the Kenya Civil Aviation Act of 2013. This Act establishes the regulatory framework which all industry participants must adhere to in order to safeguard themselves and their users against unlawful interference. The Act stipulates the requirement for industry participants to endorse a security program factoring how security operations and breaches will be handled. In addition, the Act points out specific requirements relating to on-board security, passenger screening and the development of an integrated response and proactive approach to managing aviation security.

There is need to do more study on the regulatory measures that should be considered in our laws to ensure that passenger profiling, if introduced in Kenya, is efficiently and effectively used to enhance aviation security.

5.3 Conclusion

Passenger profiling transcends narrow topic of aviation security. Secure Flight and its predecessor profiling systems animate a philosophical tension in the society the world over, disrupting the theoretical constitutional fault-line of liberty and order. Most citizens in countries where profiling is practiced equate liberty and privacy with a right to avoid the public gaze and
to be let alone. Democratic and utilitarian impulses, meanwhile, encourage individual sacrifice for the greater good, e.g. national security. Whether national security and privacy are equivalent concerns is debatable.

The relative importance of personal liberty and societal security is contextual. While the federal government of the US is stimulated to preempt terrorism, the urgency that motivates Secure Flight dissipates over time as Americans normalize their lives and return to routines after September 11th. Today, increasingly, Americans greet successively intrusive national security measures by the federal government with an “anti-anti-terrorism” sentiment that is based upon concerns about an ever-expanding executive and a “fear of technology”.

Some citizens “equate the potential for abuse of Executive Branch authority with the existence of actual abuse,” considering “any expansion of executive authority, notwithstanding the potential for benign and beneficial results, because they judge the potential for the abuse of power to outweigh the benefits gained”. The TSA’s promise to remedy profiling system mistakes after-the-fact is no promise for many Americans. For privacy advocates and civil libertarians, the idea of federal government access to airline passengers’ personal commercial data is problematic in the first instance. As one DOT official said, “many on the outside feel that the government cannot monitor its own activities.” The interplay of liberty and order is so delicate and fundamental that, whatever the events of September 11th, it is difficult to envision an adaptation of Secure Flight or similar airline passenger profiling system that harmonizes these two ideals.

The events of September 11th mandate better security-related intelligence, however. Intelligence services should gather and share more information to effectuate this end. Secure Flight is consistent with this objective. Information networking vis-à-vis airline passenger profiling is a clear, limited, context-specific societal objective that, in a post September 11th environment, legitimately rivals private interests. As one scholar notes (Nehf, 2003), to best
protect privacy rights generally, “in the modern digital world, information privacy should be viewed as a societal value justifying a resolution in the public interest, much like environmental policy and other societal concerns, with less emphasis on individual self-policing and market-based mechanisms.”

As to Passenger Profiling, there is need to do more so as to publicize the merits of the system and make citizens have confidence in it and their rights relative to it. To date, however, passenger profiling develops at a distance from airline passengers, through technical legal papers, narrow communication channels, and uninviting bureaucracy. The government should engage Kenyan citizens to participate in national security programs actively.

In place of paternalism, the government might create a collaborative approach to national aviation security. This can be done if the government provides tangible travel-related benefits in exchange for voluntary sacrifice on the traveler’s part. As part of any aviation security campaign, the government might look more closely at the recommendations of private actors in the Kenyan aviation industry. For example, in the US, the Air Transport Association supported expansion of the government’s “Registered Traveler” program, which made it easy to be tested at airports in Boston, Houston, Los Angeles, Minneapolis, and Washington, D.C. Registered Traveler invited participants to submit to a background check voluntarily and to provide security agents with their birth date, phone number, address, and a biometric identifier (e.g., fingerprint or iris scan). In return, registered airline passengers would avoid checkpoints and/or extra screening. Passengers who do not want to give up their privacy need not fly commercially (Crandall, 2015). This brought a lot of success in the whole process and Kenya can learn from this.

In the final analysis, the government implementing profiling system will divide Kenyans philosophically. Within the debate of whether to adopt passenger profiling as an extra measure to improve aviation security, the Kenyan government needs to make a definite choice, allowing
national security concerns to overtake privacy interests by some measure. This decision will be understandable and appropriate. Of course, citizens must not abandon a corresponding right and duty to protect, protest, and effectuate change to the extent constitutional conceptions of privacy and civil liberties are impinged. Airline passenger profiling systems do not purport to be panaceas for security-related vulnerabilities of the commercial airline industry. Instead, they are but one, vital element in a coordinated defense against tangible threats to Kenyan lives, economic growth and good relationship with other countries. If Kenya Airport Authority was to adopt Ben Gurion’s approach, it would be more difficult for those intending to commit any crime within our airports or aircrafts to succeed. There is a lot to be said for emphasizing eye contact, behavioral cues, and instinct when addressing the subject of airport security. If Kenya is to enhance aviation security and safety, then there is need for use of passenger profiling in addition to the current screening methods.
References


