Towards a framework for identity verification of vulnerable children within the Eastern Cape

James Rautenbach

Submitted in partial fulfilment of the requirements of the degree

M Tech: Business Information Systems

in the School of ICT

at the Nelson Mandela Metropolitan University

Supervisor: Darelle van Greunen

April 2007
**Acknowledgements**

I would like to thank the following people who were involved in and who contributed towards the development and completion of this dissertation:

My Supervisor, Darelle van Greunen, for her endless support, encouragement and clear minded guidance (especially at crucial moments in the evolution of the dissertation). Her dedication in giving up significant personal time to ensure the timeous completion of the dissertation deserves special mention. Her ability to understand both the technical requirements and social issues surrounding the subject matter of the dissertation coupled with her passion for the vulnerable enabled her to have significant insight and to provide invaluable input.

Professor R von Solms for the professional manner in which the M Tech: Business Information Systems course has been managed.

Luca Fanicchi, the Eastern Cape Provincial Government Chief Information Officer, for his advice and positive criticism that gave focus to the dissertation.

Thank you also to my family and friends for their support and prayers throughout the year.

A special thanks goes to my incredible, darling wife, Andrea Rautenbach, for her uncompromising support and faithful encouragement. Without her this dissertation would have been an insurmountable obstacle. In many ways this dissertation is a team effort with her sacrificing significant time and energy to enable me to complete this challenging task.

I would like to thank the Lord Jesus whose grace has carried me through a very difficult season and who has set in my heart a love for learning and a passion for my country.

This research project is dedicated to my father, Professor CT Rautenbach (the true family academic) for his many words of encouragement, his frequent phone calls, his time spent proof reading and his numerous, invaluable suggestions. His love for Africa, his ongoing quest for Learning and his dedication to Academia continuously inspires and motivates me.
Summary

This dissertation proposes the development of an identification verification model that can be implemented within the context of the Eastern Cape, South Africa in order to ensure that vulnerable children are provided with the requisite care that they deserve from the state. The dissertation provides both a developed and developing world perspective on the identification verification needs of vulnerable children by providing an overview of relevant South African policy with regard to caring for vulnerable children and presenting an international perspective with specific reference to current legislative developments in the United Kingdom and Malaysia.

Chapter 1 provides a motivation for a framework to be used for the identification verification of children in developing countries by emphasising that the provision of basic social services to children is an urgent requirement for poverty eradication and is a necessity as documented in the United Nations Convention on the Rights of the Child. A background to the needs of vulnerable children in South Africa is given and the scope, limitations and research methodology used in the dissertation is presented.

Chapter 2 provides an overview of child related policy in the South African Context both from a National Government and Eastern Cape perspective. Although extensive progress has been made in the development of policies aimed at protecting vulnerable children, the practical implementation of these policies has been hampered by numerous issues including the lack of coordination between key entities.

Chapter 3 provides an introduction to several noteworthy international developments with regard to the identity verification of vulnerable children. Lessons learnt from identity verification systems from the United Kingdom and Malaysia are analyzed for applicability to the South African context. In addition to this, the use of biometric technology in identity verification systems and a number of biometric identification methodologies available are discussed.

Chapter 4 proposes the development and implementation of a biometric identity verification model in the Eastern Cape Province of South Africa based on lessons learnt from the
assessment of South African policy and international best practice. The system should be piloted in the Eastern Cape and, if successful, be implemented throughout South Africa with a possible view to future implementation on the African continent. The scope of the system, the technological requirements and a high level implementation plan together with the need to further research certain key aspects e.g. the cost implications are discussed.

It is clear that the development of such a model and the implementation of such a system will ensure that vulnerable children are provided with the requisite care that they are constitutionally entitled to. Significant follow up research is required during the development of the model to ensure that all aspects of the model are well documented and during the implementation of the system to ensure that the requirements of the users both within the government and the general public are met.
# Table of Contents

Chapter 1: Introduction .................................................................................................................. 8  
  1.1. Background ......................................................................................................................... 8  
  1.2. Aim ................................................................................................................................... 12  
  1.3. Motivation ......................................................................................................................... 12  
  1.4. Scope ................................................................................................................................ 19  
  1.5. Limitations ....................................................................................................................... 20  
  1.6. Research Methodology ................................................................................................. 21  
  1.7. Outline of the Dissertation ............................................................................................ 21  

Chapter 2: Theoretical Background – South African Perspective ................................................. 23  
  2.1. Introduction ...................................................................................................................... 23  
  2.2. Overview of South African Policy and Development Planning Process ....................... 23  
  2.3. National and Eastern Cape Provincial Government Policies: ....................................... 29  
  2.4. Conclusion ....................................................................................................................... 47  

Chapter 3: Theoretical Background – International Perspective .................................................... 48  
  3.1. Introduction ...................................................................................................................... 48  
  3.2. The United Kingdom Child Index Model ...................................................................... 48  
  3.3. The Malaysia My-Kad System ....................................................................................... 57  
  3.4. Overview of Biometric Identification Verification Technology ..................................... 61  
  3.6. Conclusion ....................................................................................................................... 69  

Chapter 4: Proposed Identity Verification Framework for Vulnerable Children in the Eastern Cape  
  ........................................................................................................................................................... 70  
  4.1. Introduction ...................................................................................................................... 70  
  4.2. Purpose and Scope ........................................................................................................... 71  
  4.3. Technological Requirements ....................................................................................... 72  
  4.4. Implementation Plan .................................................................................................... 75  
  4.5. Cost Implications ......................................................................................................... 77  
  4.6. Future Issues ................................................................................................................ 77  
  4.7. Conclusion .................................................................................................................... 78  

Chapter 5: Conclusion .................................................................................................................... 79  
  5.1. Overview of dissertation ............................................................................................. 79  
  5.2. Future Research ........................................................................................................... 81  
  5.3. Conclusion .................................................................................................................... 82
List of Figures

Figure 1.1: Number of Children Under 18 Years of Age in Detention 37
Figure 1.2: Key Focus Areas of Eastern Cape Provincial Government Provincial Crime Prevention Strategy 41
Figure 1.3: Example of MyKad Smart Card 58
**List of Abbreviations**

<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Full Form</th>
</tr>
</thead>
<tbody>
<tr>
<td>AIDS</td>
<td>Acquired Immune Deficiency Syndrome</td>
</tr>
<tr>
<td>ASGISA</td>
<td>Accelerated and Shared Growth Initiative for South Africa</td>
</tr>
<tr>
<td>BBC</td>
<td>British Broadcasting Corporation</td>
</tr>
<tr>
<td>CAD</td>
<td>Card Acceptance Device</td>
</tr>
<tr>
<td>DfES</td>
<td>Department for Education and Skills</td>
</tr>
<tr>
<td>DHIS</td>
<td>District Health Information System</td>
</tr>
<tr>
<td>DoSD-EC</td>
<td>Department of Social Development – Eastern Cape</td>
</tr>
<tr>
<td>ECPG</td>
<td>Eastern Cape Provincial Government</td>
</tr>
<tr>
<td>EMIS</td>
<td>Education Management Information System</td>
</tr>
<tr>
<td>EU</td>
<td>European Union</td>
</tr>
<tr>
<td>GMPC</td>
<td>Government Multi-purpose Card</td>
</tr>
<tr>
<td>HANIS</td>
<td>Home Affairs National Information System</td>
</tr>
<tr>
<td>HIV</td>
<td>Human Immunodeficiency Virus</td>
</tr>
<tr>
<td>MDGs</td>
<td>Millennium Development Goals</td>
</tr>
<tr>
<td>MSC</td>
<td>Malaysia’s Multimedia Super Corridor</td>
</tr>
<tr>
<td>NEPAD</td>
<td>New Partnership for Africa’s Development</td>
</tr>
<tr>
<td>NGO</td>
<td>Non-Government Organisation</td>
</tr>
<tr>
<td>NMCO</td>
<td>National Missing Children Organisation</td>
</tr>
<tr>
<td>NPA</td>
<td>National Plan of Action</td>
</tr>
<tr>
<td>OAU</td>
<td>Organisation of African Unity</td>
</tr>
<tr>
<td>OCC</td>
<td>Office of the Children's Commissioner</td>
</tr>
<tr>
<td>PAWC</td>
<td>Provincial Administration of the Western Cape</td>
</tr>
<tr>
<td>PCPS</td>
<td>Provincial Crime Prevention Strategy</td>
</tr>
<tr>
<td>PGDP</td>
<td>Provincial Growth and Development Plan</td>
</tr>
<tr>
<td>PNC on ISAD</td>
<td>Presidential National Commission on Information Society and Development</td>
</tr>
<tr>
<td>SACMEC</td>
<td>South African Centre for Missing and Exploited Children</td>
</tr>
<tr>
<td>SAGEM</td>
<td>Société d’Applications Générales de l’Electricité et de la Mécanique</td>
</tr>
<tr>
<td>SAPS</td>
<td>South African Police Services</td>
</tr>
<tr>
<td>SASSA</td>
<td>South African Social Security Agency</td>
</tr>
<tr>
<td>SCEP</td>
<td>Separated Children Europe Programme</td>
</tr>
<tr>
<td>SDIMS</td>
<td>Social Development Information Management System</td>
</tr>
<tr>
<td>UN</td>
<td>United Nations</td>
</tr>
<tr>
<td>UNCRC</td>
<td>United Nations Convention on the Rights of the Child</td>
</tr>
</tbody>
</table>
Chapter 1: Introduction

1.1. Background

Developing nations, including South Africa, face many challenges raised by the scourge of poverty. The hardest hit yet most difficult to measure demographic affected by poverty, are children. However, as indicated below, it is clear that the provision of basic social services to children is an urgent requirement for poverty eradication. The purpose of this section is to provide a motivation for a framework to be used for the identification verification of children in developing countries.

It is reported that the 1990’s saw a widening of the gap between rich and poor globally, both between rich and poor countries and rich and poor individuals within countries. This widening gap affects both incomes and social outcomes (UNICEF, 2000). Widely based research indicates that a key ingredient in ensuring the success of poverty reduction initiatives and the narrowing of the widening gap between rich and poor is the provision of basic social services to children. (Gorden et al, 2006)

The United Nations Convention on the Rights of the Child (September 1990) sets out a number of basic rights of children. Gorden et al (2006) propose that these rights be organised into ten categories:

1. “Rights of freedom of expression and thought and to exchange information and ideas;”
2. Right of access to information in the media and books to promote social and mental well-being;
3. Right to protective measures against violence, maltreatment, injury, exploitation, abuse, including sexual abuse, illicit drugs and deprivation;
4. Rights in disablement of assistance for special needs and actively participate in community life;
5. Right to highest attainable standard of health and access to adequate nutritious foods, clean drinking water, pollution free environment and preventive and curative health care services;
6. Right to benefit from social security, incl. Social insurance;
7. Right to standard of living adequate for physical, mental, spiritual, moral and social development and material assistance and support programmes – particularly for nutrition, clothing and housing;
8. Right to free primary education and where appropriate free secondary education to enlarge access to education;
9. Right to recreational activities and full participation;
10. Right to measures promoting recovery and social integration following neglect, abuse, exploitation, suffering in armed conflict, torture or other degrading treatment."

Gose (2002) lists the four core pillars of the Convention as the best interest principle (Article 3), the principle of non-discrimination (Article 2), the right to survival and development (Article 6) and the child’s right to participate in matters concerning his / her wellbeing (Article 12). These four pillars are likewise foundational to the 1990 OAU African Charter on the Rights and Welfare of the Child. This African Charter was influenced by the blueprint of the International Convention, which predates the African Charter. However, the apparent focus of the African Charter is not to duplicate the efforts of the International Convention but rather to provide African regional applicability.

Despite the fact that the right to survival and development is a key in both the International Convention and the African Charter, Gorden et al (2006) reveals that there is currently no dependable estimate of the degree or severity of child poverty in the developing world.

Without accurate measurement governments are unable to determine the scale of intervention programs required. It is, however, apparent that numerous issues such as HIV and AIDS, broken households, poverty, child slavery, child prostitution, pornography and other social ills place these vulnerable children in constant danger. Dr. Maria Mabetoa (2006) from the National Department of Social Development in South Africa supports this perspective by indicating that many South Africa Children are made vulnerable by numerous social problems including poverty, orphanhood, HIV and AIDS, abuse and crime.

Vulnerable children in the developing world often interact with the state on more than one occasion, for example:
A social worker may be working with a child, facilitating his/her placement in a foster home.

- This same child may be arrested for breaking into a car.
- This same child is educated at a state school.
- This same child may at some stage have a care giver that receives a child support grant from the state.
- This same child may spend time in hospital.
- This same child may have an abusive family member.
- This same child may have run away from home at some time and been found by the police.

In many developing nations world-wide each interaction between the child and the state is treated as a separate instance. There may, therefore, be numerous files in various sections of government all containing data about the same child. At times this information may be geographically dispersed, depending on how much the child may have travelled. There appears to be very little effort to coordinate the efforts of the various arms of the state that may deal with a child.

There is therefore a need for central identity verification of children in order to ensure that the child receives the care that he / she requires and further ensures that the universal rights of the child are upheld. Further to this, accurate identity verification of children receiving support from government can assist with the production of statistical data, so urgently needed by bodies such as the UN. Only then can a faithful reflection of the true plight of children in developing countries be developed.

However, where the coordination of the efforts of the state in dealing with vulnerable children is attempted the verification of the identity of the child being aided becomes an issue.

Identity verification of children is complicated by the fact that many children in developing countries are not registered at birth, or are only registered years after their birth. They often lie about their age, name and personal details when interacting with the state. This prevents the creation of an accurate history of the interaction of child and state. The child
therefore never receives the full, holistic support and care that he / she so desperately needs. Poverty reduction programs are therefore rendered ineffective as they are often prevented from providing total support and care to the demographic that most requires it, namely the children.

The challenge of children hiding their identity is not limited to the developing world. The American National Missing Children’s Organisation (www.nmco.org, 2006) claims that a large portion of children that go missing are runaways who attempt to provide false information to law enforcement agencies that they may come into contact with in an effort to hide their identities.

Article 44 of the Convention on the Rights of the Child (http://www.ohchr.org/english/law/pdf/crc.pdf, 1990) states that “States Parties undertake to submit to the Committee, through the Secretary-General of the United Nations, reports on the measures they have adopted which give effect to the rights recognized herein and on the progress made on the enjoyment of those rights.”

Only once identity verification methodologies have been implemented can accurate reports be submitted to the U.N. Committee on the Rights of the Child (This Committee oversees the progress of countries in achieving the obligations of the Convention). In addition to this, the governing body of each country (in South Africa, the National Parliament) will then be able to truly track the progress of government with regard to the alleviation of the plight of vulnerable children and will be able to allocate budget and other state resources correctly in order to have the greatest impact.

This section has sought to provide a background to the needs of vulnerable children in the developing world. The international rights of children have been highlighted together with the need for governments to ensure that they implement programs to ensure that these rights are upheld. In addition to this, the desperate plight of children in the developing world has been discussed along with the need for these children to be targeted with poverty alleviation programs in order to break the cycle of poverty. The need for accurate identity verification of children in order to provide them with the holistic care that they
require was emphasised. In addition to this a number of the challenges surrounding the identity verification of children were identified.

1.2. **Aim**

This research project will investigate the required procedures to track every interaction between a vulnerable child and the state, using identity verification systems, within the context of the many challenges facing the developing world and the legal framework in South Africa in order to provided children with the requisite care that they deserve from the state.

1.3. **Motivation**

1.3.1. **Intention**

South Africa is a country faced by many challenges which include extensive poverty, unemployment and a high crime rate. “In 1995, 28% of households lived below the estimated poverty datum line of R322 per month – calculated on the basis of expenditure – while the figure for 2000 was just under 33%.” (SocioEconomic Report, 2006)

A major challenge in the ongoing fight against poverty is the identity verification of the citizens of South Africa to ensure that the right basic services are delivered to the right citizens on time.

The National Department of Home Affairs assents to this fact and underlines the critical importance of a mechanism that is able to determine with certainty the identity of any one individual in South Africa as many situations arise where there is an urgent need to correctly identify “who is who”.

The purpose of this section is to motivate for a child centric identification verification system in South Africa by analysing current and proposed identity verification systems in South Africa with specific emphasis on systems aimed at children.
1.3.2. The Home Affairs National Information System (HANIS)

Keith Breckenridge (2002), in his paper entitled “Biometric Government in the New South Africa” provides an overview of the identity verification issues facing the South African Government and of the current proposed solution. He notes that the former “Independent Homelands” were each given responsibility for recording the identity, births, marriages and deaths of their citizens. By the end of Apartheid there were at least a dozen population registers, many with overlapping information. In 1991 a new population register was introduced in South Africa – one with no racial indicators. This did not include the data from the “Independent Homelands” population registers which was added in 1994. This combined population register had inherited the content and data structure of all the previous registers. This population register is only as reliable as each of its originating registers and the data collection methods used by each one.

Brenkenridge (2002) further notes that the unreliable population register in South Africa has been identified as the single cause of a number of serious problems namely, fraud, illegal immigration and unchecked crime. Therefore, the new Department of Home Affairs moved swiftly to obtain interdepartmental and Cabinet approval for a replacement for the old population register.

“HANIS, the Home Affairs National Identification System is the ultimate brainchild of the struggle against crime caused by the susceptible identification system here,” an official account explains, “The Department exudes confidence that this is the answer!”

HANIS has been a “buzz word in South African IT circles for a number of years. The following provides an introduction to HANIS.

“The HANIS smart card system has been in the pipeline for several years, having been conceived in 1993 and approved by the Cabinet in January 1996.” (Scott, 2005)

“The aim of HANIS is to record all fingerprints, photographs and other data digitally and allow several levels of verification that will be used whenever a government service is requested. This includes pension payments, unemployment payments and access to the health system.” (http://www.canadasachamber.com/news/Index.cfm?/fuseaction=NewsDet
"The major functions of HANIS include:

- Establishment of an automated citizen identification system;
- Management of the development and maintenance of an automated fingerprint service;
- Management of the development and maintenance of an automated ID-card production facility;
- Rendering technical advice service concerning identification systems" (Department of Home Affairs, South Africa, 2003)

The focus of this research is on the identity verification of vulnerable children and proposing the need for a system aimed specifically at assisting the state with the process of verifying children in their every interaction with the state. At a cursory glance, the HANIS system appears to be the "silver bullet", the solution to all identity verification needs of all citizens. Should HANIS be implemented correctly, all government systems that deal with individuals, be it the Child Protection Register, the Social Security System, the Drivers License and Vehicle Licensing system, will feed off this system for the verification of individuals.

1.3.3. Concerns regarding HANIS

However, there are several concerns surrounding the development of HANIS. A number of critical concerns surrounding HANIS are encapsulated by Keith Breckenridge (2002).

"One point is fairly clear however. South Africa is going to be the first country to implement a biometric national identifier (reliant on some form of smart card technology). But why is it that South Africans are implementing computerized biometric registration before anyone else? And why have other societies chosen not to do this? Why is it that none of the other industrial capitalist societies have a similar scheme in mind? In Europe, according to Gartner, smartcard identity documents are not even planned in Germany, France, Britain, Denmark and Sweden. What is striking in this debate is that the most influential information technology research company, the Gartner Group, has come out in opposition to biometric
identity documents. This is particularly interesting as many of Gartner’s largest clients would be likely to benefit from the enormous direct and indirect spending on hardware and software that would result from the deployment of a national biometric identity. Gartner’s reasoning for not implementing smartcard identity systems is compelling, and it raises the prospect of four frightening hazards for the deployment of HANIS in South Africa.”

These hazards are summarized as follows:

a) The first serious problem with the implementation of a digital biometric identity document is likely to be the problem of deliberate or accidentally mistaken identity.

b) A second, and related concern, is the problem of security.

c) And then there is the problem of the future. The cryptographic systems that are deployed on the cards today are very unlikely to be worth very much in a decade.

d) Finally there is the problem of “data-creep”.

The major issue that encapsulates all four concerns noted above is that of privacy and the fear of the “Big Brother” state as envisaged by George Orwell (http://en.wikipedia.org/wiki/Nineteen_Eighty-Four, 2006). The international community takes these issues rather seriously. The following example from Canada provides insight into the lengths being taken in democratic nations to ensure that individual privacy is protected.

The Ontario Government has developed legislation surrounding the implementation of a Social Security system. This legislation is ground breaking in the manner in which it protects the privacy of its citizens while still enabling the implementation of a biometric identity verification system. The following extract from a case study regarding the Ontario legislation provides clear support for the concerns raised by Breckenridge.

“The Ontario government passed the Social Assistance Reform Act (this) legislation is unprecedented with respect to the breadth of the privacy safeguards regarding the use of an encrypted biometric. The following protections are enshrined in the legislation:

- any biometric information collected under this Act must be encrypted;
- the encrypted biometric cannot be used as a unique identifier, capable of facilitating linkages to other biometric information or other databases;
• the original biometric must be destroyed after the encryption process;
• the encrypted biometric information only can be stored or transmitted in encrypted form, then destroyed in a prescribed manner; and
• no program information is to be retained with the encrypted biometric information.

Further, the statute includes the following provision:

Neither the director nor an administrator shall implement a system that can reconstruct or retain the original biometric sample from encrypted biometric information, or that can compare it to a copy or reproduction of biometric information not obtained directly from the individual.

Therefore, the biometric technology selected must not be capable of either reconstructing or recreating an original biometric pattern from the encrypted biometric nor having it matched to a copy or reproduction of a biometric not obtained directly from the individual (i.e., a latent fingerprint taken from a crime scene). As a result, the database containing the encrypted biometrics of welfare recipients would be of little interest to the police. However, should they or any other third party want to access the biometric information, they only could do so through the production of a court order or a warrant. Otherwise, they would not be permitted access to the data.” (FindBiometrics, 2006)

This legislation not only identifies the concern. It further provides a clear way forward for the development of a biometric enabled system with a clear purpose (in this case the payment of social assistance) that does not interfere with the privacy of citizens.

A further concern regarding HANIS is in relation to the full implementation thereof. The HANIS concept was agreed to by Cabinet in 1996. Ten years later only slow progress has been made. The needs of vulnerable children in South Africa are so great at this stage that critical time will be lost while waiting for HANIS to finally come into full operation. Every day that an accurate system is not in place could mean the death or physical or emotional harm of a child in South Africa. These are crucial times that we live in.
The above mentioned concerns are not addressed at present and therefore the case for the development of an identity verification system for children in South Africa can be made. An overview of current systems focused on vulnerable children follows.

1.3.4. Current Child Centered Identification Verification Systems in South Africa

It is rather interesting to note that in the vacuum caused by the delay of the full implementation of HANIS, several systems have been developed with specific focus on vulnerable children in South Africa. An overview of two of these follows:

The first is a system developed to track street children in the Western Cape. This project was initiated specifically to ensure that street children who had been arrested would not be held in adult prisons. The need for such a system was identified by politician Patricia de Lille who complained to the Provincial Administration of the Western Cape (PAWC) about the number of juveniles in adult prisons.

The PAWC drafted tender specifications for a system to aid in the management of vulnerable children. A Cape Town based company specialising in biometrics, Biometrics.co.za, was awarded the tender. To date the system has been installed in a number of institutions that deal with vulnerable children, including certain magistrates' courts in Cape Town.

The system uses a fingerprint scanner to identify the Child. The system makes use of a comprehensive database, to assist the police in arranging for children to be sent to places of safety, rather than prison (Weidemann, 2004).

The system has been developed to be as user friendly as possible. "By placing a child’s finger on a biometric reader, unique identification information of that child is captured. This is then added to, and stored on, a central database. Each time that a child is then arrested, found or assisted, information regarding the incident is added to the database. Because of the reliability and uniqueness of each person’s fingerprint, there can be no confusion as to the child’s history and movements." (http://www.balancingact-africa.com/news/back/balancing-act_209.html, Issue 209, 2006)
This system helps identify the true identity, age and name, of a child in conflict with the law to ensure that the child is correctly diverted in keeping with policy. The goal of the system is to keep children below the age of eighteen out of prison by clearly identifying them. Details of children on the system are then made available to other government departments, e.g. Education, Social Development, should they require any information regarding the child.

The second initiative is not one system per se, but rather consists of a process of using available technology to provide a solution. “The South African Centre for Missing and Exploited Children (SACMEC) was officially launched at the Centurion Golf Estate during April 2004. Technology will play a central role in its attempts to locate and place missing children, says SACMEC executive member Inati Ntshanga, as it has been used with great effect in the past. “When the Bureau for Missing Persons (BMP) opened in 1994, they only had a success rate of around 3%, but by harnessing basic technology like computers and cell phones, the success rate increased to 76%.” (Clarkson, 2004)

The SACMEC has realised that the correct harnessing all available technology, used on an every day basis, can bring about a significant improvement in the search for missing children.

1.3.5. Motivation for the Development of a Specialised Child Centric Identity Verification System in the Eastern Cape

Initiatives such as those mentioned above need to be carefully evaluated in order to determine their true effectiveness. Lessons learnt, together with best practice models can then be noted and applied to the development of a system that targets the needs of South Africa’s vulnerable children. It is evident that there is an urgent need for an information system that takes into account the needs of children, while ensuring full compliance with current South African legislation (e.g. the Children’s Act of 2005), ensures that the privacy of individuals is honoured and aligns itself with current policy initiatives within South Africa.
A key consideration in the development of such a system is the need for it to comply with the basic HANIS framework in order for it to be interoperable with the HANIS system. There is also the potential that the data could be imported into HANIS or compared to HANIS on a regular basis to verify identity. A similar process could be followed with the SAPS Automated Fingerprint Identification System (AFIS) system. The central SAPS AFIS database has copies of over five million fingerprints of criminals and can be accessed remotely through a SAGEM manufactured mobile device. In 2002, AFIS replaced a century old manual system. However, the AFIS system is limited to criminal fingerprints and legislation prohibits access to civil databases. Therefore, the privacy rights of children and the legislative requirements would need to be contemplated when it comes to making their information available to the South African Police Service. (Engelbrecht, 2007)

In order to successfully develop a system of this magnitude within the South African context focus is required with regard to its implementation. Since South Africa is divided into nine provinces it would be appropriate to develop and implement such a system in one of these provinces. The Eastern Cape Province provides an ideal pilot environment for the development and implementation of such a system. This is due to the urgent need facing children in the Eastern Cape, the large urban, rural mix and the large population. The Eastern Cape seems to contain all the challenges faced by the other eight provinces.

Such a system and the related legislative model (with specific regard to privacy issues), once implemented successfully, can then be rolled out be used in South Africa. This same system can then be used to assist other vulnerable groups e.g. persons living with disability.

1.4. Scope

In order to ensure a clearly focused analysis of the subject matter the scope of the dissertation should be clearly defined. The research objectives can therefore be summarized as follows:

a) To provide a clear definition of identification verification;

b) To examine current policies and procedures in place in South Africa with regard to identification verification of vulnerable children;
c) To review international best practice initiatives;
d) To propose an identity verification framework for vulnerable children that can be used in the Eastern Cape.

It is important to note that certain key issues are excluded from the scope of the dissertation. This is to ensure that the dissertation does not lose focus and to ensure that adequate attention is given to the elements contained within the scope. Each of the key elements excluded from the scope could be the subject of an extensive dissertation on their own.

The following elements are excluded from the scope of the dissertation:

a) Privacy. Although referred to both within the discussions around South African policy and International policy, the implications of identification verification systems on the privacy of individuals, a currently hotly debated, is excluded from the scope of the dissertation.

b) Security. Closely related to privacy, security issues focus on the myriad of concerns related to securing an identification verification system. With the increase in identity theft world wide, there is a need for a high level of security to be built into any live identity verification system.

c) Cost Implications. In order for a system of this nature to be accessible to all relevant role-players, significant financial resources will be required. A complete costing model, taking into account the hardware, software, connectivity, development and maintenance needs will need to be devised. This is excluded from the scope of the dissertation.

These three elements should form the key components of future research in this regard.

1.5. Limitations

At this stage an important disclaimer should be noted. Namely that the subject matter of the dissertation is by no means a thorough critique of child related policy within South Africa or in the countries referenced. In addition to this, the author has neither formal training in the Social Development field nor first hand experience with regard to dealing with vulnerable children. The dissertation, rather, has its focus on a model for identity
verification of vulnerable children from an information systems perspective, given the clearly apparent need for such a model within the Eastern Cape context.

1.6. Research Methodology

The research will be performed by means of a literature review and by analysing relevant policies, procedures and strategies that are currently implemented in South Africa along with the legal framework in existence in South Africa.

As this research will be performed by means of a literature review, the sources of data will stem from journals, academic papers, books, magazines, case studies, news articles and examples from around the world. Relevant legislation from South Africa along with UN and other pertinent international directives will be referenced where necessary.

1.7. Outline of the Dissertation

The dissertation provides a theoretical background to the identification verification needs of children by firstly providing an overview of South African policy with regard to caring for vulnerable children. An international perspective is then presented with specific reference to current legislative developments in the United Kingdom and Malaysia. This provides both a developed and developing world perspective. An identification verification framework model, that can be implemented within the context of the Eastern Cape, South Africa, is then proposed.

The dissertation is structured in the following manner:
Chapter 2: Theoretical Background: South African Perspective. This chapter provides an overview of child related policy in the South African Context with specific emphasis on the Eastern Cape and the need for the verification of the identity of vulnerable children in their interaction with the state. Chapter 3: Theoretical Background: International Perspective. This chapter provides an introduction to several international policy and legislative developments with regard to the identity verification of vulnerable children. Specific emphasis is placed on identity verification systems from the United Kingdom and Malaysia. In addition to this, the use of biometric technology in identity verification systems is discussed. Chapter 4: Proposed Identification Verification Framework for Vulnerable
Children in the Eastern Cape. This chapter proposes the framework for an identity verification system for the management of the interactions of vulnerable children within the Eastern Cape with the South African government. This system will ensure that vulnerable children are provided with the requisite care that they need. Chapter 5: Conclusion. This chapter provides an overview of the dissertation by summarising the main concepts of the document.
Chapter 2: Theoretical Background – South African Perspective

"The well-being of our children lies in the hands of all of us. It is up to each individual, each neighbour, each family and each community to take a stand to protect our most cherished and valuable asset our future, our children," (Zola Skweyiya, South African Minister for Social Development, May 2006).

2.1. Introduction

The purpose of this chapter is to provide an introduction to existing policies and procedures regarding vulnerable children within South Africa. A brief overview of the structure of the South African government is given together with the process involved in the development of policies on a National Government Level and the adoption of these policies by the Provincial and Local spheres of Government. It is shown that although extensive progress has been made in the development of policies aimed at protecting vulnerable children, the practical implementation of these policies has been hampered by service delivery backlogs, limited resources and the lack of cooperation between the various spheres of government (the so called “siloh” mentality whereby no cooperative government initiatives occur).

In addition to this, the multiple information needs of numerous organs of state with regard to vulnerable children are highlighted, indicating the need for a system that can coordinate and trace the multiple interactions of children with the state. Such a system is critical to ensure that children are cared for in a coordinated manner by all organs of state in order for the correct care to be provided by the right organisation at the right time. There is an urgent need to ensure that children in South Africa do not end up lost in the welfare system.

2.2. Overview of South African Policy and Development Planning Process

2.2.1. International Policies that Influence South African Policy Development

In order to clearly understand the position of South Africa with regard to developmental planning it is important to look at the international environment that influences South African policy development. The overarching strategy currently influencing developmental efforts globally and in South Africa is the United Nations Millennium Declaration.
addition to this, the International Convention on the Rights of the Child (1990) and the African Charter on the Rights and Welfare of the Child (1990) (discussed at length in Chapter 1) have had a significant impact on child related policy development within South Africa.

“The eight Millennium Development Goals (MDGs) – which range from halving extreme poverty to halting the spread of HIV/AIDS and providing universal primary education, all by the target date of 2015 – form a blueprint agreed to by all the world’s countries and all the world’s leading development institutions. They have galvanized unprecedented efforts to meet the needs of the world’s poorest.

The eight Millennium Development Goals are:
Goal 1: Eradicate Extreme Hunger and Poverty
Goal 2: Achieve Universal Primary Education
Goal 3: Promote Gender Equality and Empower Women
Goal 4: Reduce Child Mortality
Goal 5: Improve Maternal Health
Goal 6: Combat HIV/AIDS, Malaria and other diseases
Goal 7: Ensure Environmental Sustainability
Goal 8: Develop a Global Partnership for Development”

The UN Millennium Declaration has provided governments and citizens of developed and developing countries with the opportunity of focusing attention on the common objectives of humanity contained therein. South Africa especially is equipped to mobilise itself for a more humane approach to its plight and that of other poor regions on the African Continent due to its location, the size of its economy on the continent, and its current endeavours and outlook (http://www.info.gov.za/aboutsa/history.htm, 2006).

The involvement of South Africa is essential as the United Nations still considers Sub-Saharan Africa as the least effective region in the world with regard to the achievement of the Millennium Development Goals. (http://www.unmillenniumproject.org/goals/index.htm, 2006).
All eight MDG’s relate to children either in a direct or in an indirect manner e.g. Goal 2: Achieve Universal Primary Education relates directly to children while Goal 1: Eradicate Extreme Hunger and Poverty relates to children indirectly in that a large percentage of the world population facing starvation, are children. In order to see the achievement of the MDG, the Government in South Africa has the responsibility of aligning policy and strategy with these MDG’s.

In addition to this, in 1999, South Africa committed itself to the International Convention on the Rights of the Child (1990) and the African Charter on the Rights and Welfare of the Child (1990). In so doing South Africa has committed itself to ensuring that the rights of children, as laid out in these charters, are upheld and to report to these bodies on a regular basis on progress made in this regard. The Government of South Africa therefore has a responsibility to ensure that the implementation of the rights of children, as laid out in these charters, is a key element of all policy and strategic initiatives targeting children.

In order to understand how South Africa can developed child centric policies and ensure their implementation it is important to understand the structure of the South African Government and its policy development processes.

2.2.2. Introduction to the Structure of the South African Government

South Africa is a constitutional democracy that operates under a three-tier system of government (national, provincial and local). It has an independent judiciary and makes use of a Westminster-styled parliamentary system. The President of South Africa (elected by parliament), is the head of government (which is run as a pluriform multi-party system).

Executive power is exercised by the government. Legislative power is vested in both the government and the two chambers of Parliament, the Council of Provinces and the National Assembly. The Judiciary is independent of the executive and the legislature.

South Africa’s government differs greatly from those of other Commonwealth nations in that the national, provincial and local levels of government all have legislative and executive authority in their own spheres, and are defined in the South African constitution as "distinctive, interdependent and interrelated". In addition to this advisory bodies drawn from South Africa’s traditional leaders operate at both a national and provincial level.
Despite the powers vested in Provincial and Local Government, the Constitution (Act 108 of 1996) states that South Africa should be run on a system of cooperative governance.

With regard to policy development, the South African Government should ensure coordination of national, provincial and local initiatives. The Ruling Party of the Country (presently the African National Congress) sets the policy direction for the country (this should be in line with internationally recognised and assented to focus areas e.g. the Right of Children as set out in the UN and African Charters). Overarching national policies are then developed in line with this policy direction. Policies developed on a national level by a department should be in line with the overarching national policies. In the same manner, policy development within provincial and local government should align itself with the overarching national policy and the related policy initiatives of national government.

It should be noted that the supreme law in South Africa is the Constitution (Act 108 of 1996) to which all government bodies are subject to. (http://en.wikipedia.org/wiki/Government_of_South_Africa, 2006)

The present Constitution of South Africa (Act 108 of 1996) was certified by the Constitutional Court on 4th December 1996 and was signed by President Mandela on 10th December 1996. It entered into effect on 3 February 1997. It is currently being implemented in phases. (http://en.wikipedia.org/wiki/Politics_of_South_Africa, 2006)

2.2.3. The Constitution

The South African Constitution (Act 108 of 1996), Chapter 2, Section 28 sets out the rights of children in South Africa. These rights are as follows:

"28. Children

1. Every child has the right
   a. to a name and a nationality from birth;
   b. to family care or parental care, or to appropriate alternative care when removed from the family environment;
   c. to basic nutrition, shelter, basic health care services and social services;
   d. to be protected from maltreatment, neglect, abuse or degradation;
e. to be protected from exploitative labour practices;

f. not to be required or permitted to perform work or provide services that
   i. are inappropriate for a person of that child's age; or
   ii. place at risk the child's well-being, education, physical or mental health
       or spiritual, moral or social development;

g. not to be detained except as a measure of last resort, in which case, in
   addition to the rights a child enjoys under sections 12 and 35, the child may
   be detained only for the shortest appropriate period of time, and has the right
   to be
   i. kept separately from detained persons over the age of 18 years; and
   ii. treated in a manner, and kept in conditions, that take account of the
       child's age;

h. to have a legal practitioner assigned to the child by the state, and at state
   expense, in civil proceedings affecting the child, if substantial injustice would
   otherwise result; and
   i. not to be used directly in armed conflict, and to be protected in times of
      armed conflict.

2. A child's best interests are of paramount importance in every matter concerning the
   child.

In this section "child" means a person under the age of 18 years.”

2.2.4. Significant National Policy Initiatives

Three of the many national policy initiatives of South Africa that have bearing to the
protection of vulnerable children are the National Plan of Action, the Accelerated and
Shared Growth Initiative for South Africa (ASGISA) and the Presidential National
Commission on Information Society and Development (PNC on ISAD).

The National Plan of Action drives development initiatives within South African to ensure
that the MDG's are achieved. The Accelerated and Shared Growth Initiative for South
Africa (ASGISA) is a national shared growth policy which together with the NPA provides a
framework for development in South Africa. The vision of ASGISA can be summarised as
follows: “Our vision of our development path is a vigorous and inclusive economy where
products and services are diverse, more value is added to our products and services, costs
of production and distribution are reduced, labour is readily absorbed into sustainable employment, and new businesses proliferate and expand.” (http://www.info.gov.za/asgisa/asgisa.htm, 2006)

In addition to the above mentioned policies and strategies, the Presidency has instituted the Presidential National Commission on Information Society and Development (PNC on ISAD). The PNC on ISAD has the mandate of driving the formation of a "people-centred, inclusive and development-oriented Information Society, where everyone can create, access, utilise and share information and knowledge, enabling individuals, communities and peoples to achieve their full potential in promoting their sustainable development and improving the quality of their life" in South Africa. (www.pnc.gov.za, 2006).

In other words, the PNC on ISAD has a mandate to drive the development of an information society in South Africa through the coordination of all ICT related projects within the country (with specific emphasis on those projects that drive development e.g. e-education projects and e-health projects). The belief is that as Information and Communications Technologies penetrate areas of poverty they will contribute in a significant manner toward social upliftment and change. The implementation of an ICT system focused on aiding vulnerable children is a project that is aligned with the goals of the PNC on ISAD.

2.2.5. Policy Development within the Eastern Cape

The various spheres of government in South Africa have the responsibility of developing policies and procedures (in a coordinated manner) to ensure that the rights of children are upheld.

It should be noted that National Government Departments in South Africa are responsible, in the main, for high level policy development. The Provincial Government is then responsible for ensuring that this policy is assimilated, regionalized and implemented in a manner that meets the needs of its citizens in line with the overarching strategies of government.
The Eastern Cape Provincial Government has in turn developed a Provincial Growth and Development Plan (PGDP). The PGDP “…sets out the vision and plan for the development of the Eastern Cape until 2014. It spells out what will be done to fight poverty, promote economic and social development, create jobs, and generally create a better life for all in the Eastern Cape. It’s is a very far-sighted document which not only set out a strategy for improving the lives of people today, but lays the foundation for creating a better future for generations to come.” (http://www.ecprov.gov.za/Uploads/pdfFiles/PGDP_FULL(1).pdf, 2006)

“The Provincial Government of the Eastern Cape and its social partners have formulated a Provincial Growth and Development Plan (PGDP) in line with the national policy framework for socio-economic planning at provincial level. The PGDP provides the strategic framework, sectoral strategies and programmes aimed at a rapid improvement in the quality of life for the poorest people of the Province. To do this, the PGDP sets out a vision with quantified and sequenced targets in the areas of economic growth, employment creation, poverty eradication and income redistribution for the 10-year period 2004-2014.” (http://www.ecprov.gov.za/Uploads/pdfFiles/PGDP_FULL(1).pdf, 2006)

For the purpose of this dissertation the policies and strategies of departments with whom children mostly interact will be analyzed in order to understand the framework within which to work. A high level overview of the child focused policies of several of the key role-players in national and provincial government will be discussed in the section below. A key focus area of the overview is the identification of areas where the verification of the true identity of the child is a requirement.

2.3. National and Eastern Cape Provincial Government Policies:

2.3.1. National Social Development:

The historical Child Care Act (Act 74 of 1983) has been viewed as outdated and insufficient to cater for the needs of vulnerable children in South Africa. In addition to this, this Act predated the South African Constitution (Act 108 of 1996) and the UN Children Rights Charter and the African Children Rights Charter. In order to rectify the situation, the National Government entered into a lengthy process of consultation with national
departments including Justice, Education, Health, Labour, Safety and Security, the provinces, non-governmental organisations and service providers in order to develop a new Children’s Act (Law, 2006). The Preamble to the Children’s Act provides sufficient background for the need for such an Act:

“WHEREAS the Constitution establishes a society based on democratic values, social justice and fundamental human rights and seeks to improve the quality of life of all citizens and to free the potential of each person;
AND WHEREAS every child has the rights set out in section 28 of the Constitution;
AND WHEREAS the State must respect, protect, promote and fulfill those rights;
AND WHEREAS protection of children’s rights leads to a corresponding improvement in the lives of other sections of the community because it is neither desirable nor possible to protect children’s rights in isolation from their families and communities;
AND WHEREAS the United Nations has in the Universal Declaration of Human Rights proclaimed that children are entitled to special care and assistance;
AND WHEREAS the need to extend particular care to the child has been stated in the Geneva Declaration on the Rights of the Child, in the United Nations Declaration on the Rights of the Child, in the Convention on the Rights of the Child and in the African Charter on the Rights and Welfare of the Child and recognised in the Universal Declaration of Human Rights and in the statutes and relevant instruments of specialized agencies and international organisations concerned with the welfare of children;
AND WHEREAS it is necessary to effect changes to existing laws relating to children in order to afford them the necessary protection and assistance so that they can fully assume their responsibilities within the community as well as that the child, for the full and harmonious development of his or her personality, should grow up in a family environment and in an atmosphere of happiness, love and understanding,” (Children’s Act 38 of 2005, 2). The National Assembly and the National Council of Provinces passed the new Children’s Act (Act 38 of 2005) on 15th December 2005. Both the old Child Care Act and the New Children’s Act make provision for the establishment of a Child Protection Register consisting of two parts, A and B.

“113. The purpose of Part A of the Register is-
(a) to have a record of abuse or deliberate neglect inflicted on specific children;
(b) to have a record of the circumstances surrounding the abuse or deliberate neglect inflicted on the children referred to in paragraph (a);
(c) to use the information in the Register in order to protect these children from further abuse or neglect;
(d) to monitor cases and services to such children;
(e) to share information between professionals that are part of the child protection team;
(f) to determine patterns and trends of abuse or deliberate neglect of children; and
(g) to use the information in the Register for planning and budgetary purposes to prevent the abuse and deliberate neglect of children and protect children on a national, provincial and municipal level."

“118. The purpose of Part B of the Register is to have a record of persons who are unsuitable to work with children and to use the information in the Register in order to protect children in general against abuse from these persons.” (Children’s Act, Act 38 of 2005)

This register is given significant status within the Act and, if correctly implemented, has the ability to directly impact on the steps taken to protect children in South Africa.

It is clear, however, that the implementation of the Child Protection Register in South Africa has had many obstacles to date and that at this stage no accurate, up to date, register exists in the country that can be relied upon for critical decision making. The following reports from the Daily Dispatch (a widely distributed newspaper in the Eastern Cape), during the 2006 Child Protection Week (held annually in May), provide an indication of the inadequate implementation of the child protection register in South Africa.

“... only 13383 (nation wide), a fraction of the children whose names should be on the register, had actually been included...

However, the Eastern Cape had not installed (the child protection register) yet, while North West had only 18 names on the list, Limpopo 29 and KwaZulu-Natal 36...
The main objectives of the register were to ensure that, if an abused child was moved, authorities could track the child to prevent the same abuse from recurring, ensure that
children on the register received proper services, and create a picture of child protection needs across the country to identify gaps." (SAPA, 2006)

“From April 2005 to March (2006) 3600 cases ranging from physical abuse to malnutrition had been reported (to the department of Social Development in the Eastern Cape, according to the Chief Director for Social Welfare Services)…. Police statistics (for 2005), however, disclosed that 10900 crimes were committed against children in the Eastern Cape.” (Mapham, 2006)

There is therefore a significant difference between the actual situation, according to the police statistics, and the functioning of the child protection register. Significant intervention is required to ensure that this system operates in the way that it should.

Social Development further recognises that the need for management information regarding the plight of vulnerable children reaches further than just the issues covered by the child protection register. The National Department of Social Development has indicated in its 2006-2008 policy framework and national action plan for orphans and other children made vulnerable by HIV and AIDS that an efficiently managed management information system is a key component of the successful implementation of the policy framework. In addition to this, there is a need for this management information system to be linked throughout the whole of the social services sector in order for its implementation and use to be successful. However, no guidance or strategic plan has been given regarding the development of such a management information system. (Kganakga, 2006)

It is apparent that the National Department of Social Development recognises the need for the use of information technology in the managing of critical information regarding vulnerable children. However, it is further apparent that due to the sensitivity of information and the wide range of needs of children that are dealt with the department is proposing the use of more than one “register” / database / Management Information System to deal with vulnerable children.

The immediate concern is that vulnerable children will be viewed only in the light of the particular roster upon which they appear with no regard as to whether they may have other
needs or be recorded on other rosters. A child may, for example, be registered on the child protection register after undergoing an incident of abuse. This same child may at a later stage have his / her details recorded on an MIS dedicated to the impact of HIV / AIDS on vulnerable children. The child may have contracted HIV / AIDS through the incident of abuse, but with no link between the systems, the child may never receive the holistic requisite care.

2.3.2. Provincial Department of Social Development – Eastern Cape (DoSD-EC)

DoSD-EC identified the need for a structured method of managing and monitoring service delivery. A process was implemented whereby the Social Development Information Management System (SDIMS) was developed. 72 key indicators across a range of services that the department offers were identified and built into the system. SDIMS was developed as a modular system with various models supporting varying business processes within the department. Business processes relating to caring for vulnerable children are included in the Community Based Services Module of SDIMS. The DoSD-EC website (www.socdev.ecprov.gov.za, 2006) provides and introduction to the Community Based Services Module:

“… the Community Based Services, which is mainly for the services that the social workers provide to the community. This module comprises of four individual modules of which the core is the Case Tracking System. All clients that require services from a social worker will be registered into the system through the Case Tracking System. If the client is a child and is abused it will be notified in the child in the Child Protection Register. This is a requirement in terms of the Child Care Act (No.74 of 1983) and the information that is collected through the Child Protection Register is in line with these requirements. The Foster Care Register is a register of all foster children. This information will be cross-analysed with the foster care grant information held by Social Security. The Reception Assessment and Referral (RAR) Register is a register of all children in trouble with the law. This information will allow probation officers to monitor and manage new and repeat offenders.” (http://www.socdev.ecprov.gov.za/management_information_system/background.htm, 2006)
The Social Security Module of the system contains information regarding Child Grant, Foster Grant and Care Dependency Grant that are required for the administration of the Grants. Section 2.3.3 refers for further information regarding Social Security and its relation to vulnerable children.

A major lesson learnt in the development and roll out of the SDIMS system has been the need to make the system an integral part of the business processes of the department. After and introduction phase, the system should be made mandatory to use. A system is only as good as the data it contains and the result of staff having the option of not using the system will be a system with inaccurate data. The second lesson learnt is that the system should not result in a duplication of effort. In other words, staff should not have to perform a function manually and then repeat it electronically. In an environment where staff are already overworked the pressure of having to repeat work will not improve staff morale and will create a negative perception of the system.

2.3.3. Social Security

On 1 April 2006 the South African Social Security Agency (SASSA) began operating as a national entity, with the following mission statement:

“To administer quality social security services, cost effectively and timeously using appropriate best practices by:

- Developing and implementing policies, programmes and procedures for and effective and efficient social grants administration system;
- Paying the right grant amount, to the right person at the right time an at the most convenient place that he/she may choose;
- Delivering innovative, cost effective and efficient services to individuals, their families and community groups via multi- and easy access channels using modern technology.” (www.sassa.gov.za, 2006)

Previously this function had been performed in each province by the relevant Department of Social Development with policy guidance from the national Social Development Department. However, nine different institutions operating in significantly different environments resulted in disparate service standards and levels of service delivery. The
South African Social Security Agency Act of 2004 was therefore promulgated to ensure that service delivery was standardised across the country and to ensure that all citizens, no matter their location and environment, are able to access social assistance where required.

Three categories of social assistance grants apply directly to children, namely, Foster Child Grants, Care Dependency Grants and Child Support Grants. The following is a brief overview of each category as recorded on the SASSA website. (www.sassa.gov.za, 2006)

"Foster Child Grants:
- the applicant / child must be resident in South Africa at the time of application;
- 13 digit bar-coded ID document (applicant)
- court order indicating foster care status;
- must have valid RSA / non RSA 13 digit ID number in respect of each child;
- foster child must pass the means test.

Care Dependency Grants:
- must be South African Citizens except for foster parents;
- the applicant and child must be resident in South Africa / Permanent resident
- age of child must be from 1 to 18 years;
- must submit a medical / assessment report confirming disability;
- applicant, spouse and child must meet the requirements of the means test;
- the care-dependant child/children must not be permanently cared for in a State Institution;
- 13 digit bar coded ID document (applicant)
- 13 digit birth certificate (child)
- note: the income of foster parent is not taken into consideration

Child Support Grant:
- the child and primary care giver must be a South African Citizen and resident in South Africa;
- applicant must be the primary care giver of the child/ children concerned;
- the child/children must be under the age of 14 years;
- the applicant and spouse must meet the requirements of the means test;
- 13 digit bar coded ID document (of the care giver); and
The identity verification of the adult receiving the grant is an ongoing challenge within the South African Context. Recent news reports estimate that a large number of fraudulent grants are being paid. “… of the R55 billion that his organisation paid out for grants each year across the nation, R1,5bn was lost to fraud and corruption.” (www.dispatch.co.za/2006/10/11/Easterncape/aalead.html, 2006)

In addition to this, (in the South African context) care givers of children receiving a social assistance child support grant are required to bring the child to a Social Security office once a year in order for the identity of the child to be confirmed. About seven million children across the nation are recipients of a child support grant (Mbeki, T, 2006 State of the nation address, 2006).

Therefore the implementation of an identification verification system for children registered for the child grant could be the basis for a nationwide identification verification system for vulnerable children. There is clearly an urgent need for such a system. This system could be developed with specific focus on the Eastern Cape, implemented and if proven successful then rolled out in the rest of South Africa.

2.3.4. Correctional Services

The 2005 White Paper on Correctional Services makes provision, in chapter eleven, for special categories of offenders. Section 11.2 focuses specifically on children in detention. It states that the constitutional rights of children with regard to detention should be upheld, that children in different age groups should be accommodated separately and that children under the age of 14 have no place in correctional centers but should rather be corrected through alternate sentencing, diversion or detention centers run by Education or Social Development.
Inmates per Crime Category as on the last day of 2006/09

<table>
<thead>
<tr>
<th>Crime Categories</th>
<th>Unsentenced</th>
<th>Sentenced</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Economical</td>
<td>308</td>
<td>419</td>
<td>727</td>
</tr>
<tr>
<td>Aggressive</td>
<td>584</td>
<td>445</td>
<td>1029</td>
</tr>
<tr>
<td>Sexual</td>
<td>150</td>
<td>139</td>
<td>289</td>
</tr>
<tr>
<td>Narcotics</td>
<td>13</td>
<td>8</td>
<td>21</td>
</tr>
<tr>
<td>Other</td>
<td>54</td>
<td>62</td>
<td>116</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>1109</strong></td>
<td><strong>1073</strong></td>
<td><strong>2182</strong></td>
</tr>
</tbody>
</table>

**Figure 1.1: Number of Children Under 18 Years of Age in Detention** (http://www.dcs.gov.za/WebStatistics/, 2006)

Considering the above statistics from Correctional Services, it is clear that the guidelines, as stipulated in the White Paper, are not adhered to. In addition to this, although these children are inmates there is no guarantee that their identification has been verified against the Child protection register or against any other government roster. The concern is therefore that children (sentenced or unsentenced) are in an extremely vulnerable situation by being in detention. Further to this, these children may have interacted with the state at a previous point in time and this interaction might shed light on the reasons for the commission of the crime for which the child is detained. It is also extremely concerning that about 51% of children in detention in South Africa are unsentenced i.e. these vulnerable children are in a correctional facility for a crime that they have not yet been sentenced for.

In addition to this, the White Paper indicates that The National Programme on Diversion Programme for Minor Offenders This programme aims to divert petty offenders and juveniles out of the criminal justice system. The National Programme in relation to Secure Care for Juveniles argued that youthful offenders suspected of serious offences should not be held in standard prison or police cells. They do, however, need to be held securely, in an environment that limits unnecessary trauma and strengthens the likelihood of eventual reintegration into society. This requires the creation of special secure care facilities for young suspects and offenders.

An identification verification system would ensure that children awaiting sentencing can be assured that the full history of their interaction with the state is available to those caring for
them, which might have a major impact on their sentencing and the manner in which they are treated.

In Chapter 1 a system developed by the Western Cape Provincial Administration, with the stated focus of preventing minors from being sent to adult correctional centers, was introduced. This system is known as the Child Youth Care Application (CYCA) and makes use of a biometric indicator (fingerprints) to track the movement of vulnerable children that are being monitored by Welfare authorities. This system is the result of cooperation of the Health, Social Services and Housing Cluster of the Center for e-Innovation (CEI) of the Provincial Government of the Western Cape.

The system has currently been rolled out in a number of Magistrates Courts and Safe Houses throughout the Cape Town Metropolitan area and has been running successfully for more than two years. The use of the system has met with great success, allowing authorities to keep specific track of the interactions of children with the Criminal Justice System in Cape Town. (http://www.capegateway.gov.za/eng/pubs/mags/106028/107011/2 ;2006)

In many ways this system emulates the ideal proposed by this dissertation, namely a biometric enabled child centric identity verification system that tracks every interaction of children and the state thereby allowing the state to respond rapidly to the needs of the child and ensuring that the requisite care is provided. However, the CYCA appears to have a number of shortcomings. Firstly it appears to limit its focus to children in conflict with the law and their interaction with the courts and social workers assigned to them. Secondly, it relies on technology that is dependent on fixed government offices – more advanced biometric technology that makes use of GPRS for connectivity may be required should the system ever be implemented in a rural environment. Thirdly, privacy issues and ease of use of the system may need to be addressed should the system be opened up to other sectors of government e.g. SAPS.

It is strongly recommended that a site visit be held with the CEI team responsible for the CYCA in order for all lessons learnt to be assimilated before the User Requirements Specification for the system proposed in this dissertation is implemented.
2.3.5. Safety and Security

Bentley and Khalane (2005), in the 2005 Report on the “Development of a Community Safety Forum Model” provide insight into the Social Crime prevention framework in South Africa. They explain that the National Crime Prevention Strategy (NCPS), the foundational document for all crime prevention policies in South Africa, was approved by Cabinet in 1996 and marked a milestone in South Africa’s Criminal Justice System. The NCPS identified crime as a priority which all had a role in addressing.

The NCPS provides the foundation for crime prevention policies in South Africa. The NCPS was followed by the 1998 White Paper on Safety and Security which laid out the social crime prevention approach to be adopted by provincial and local governments, and by the social service departments of government.

The 1998 White Paper and the NCPS clearly stipulate that crime prevention should not be seen as only the responsibility of the South African Police Service (SAPS) and the Department of Justice and Constitutional Development. On the contrary, it is the responsibility of a number of national, provincial and local government bodies who together with the communities and Non Governmental Organisations all have a part to play in crime prevention in South Africa.

Children are identified as an extremely vulnerable category when it comes to crime in South Africa. The SAPS Crime Statistics for the 2005/2006 year (available at www.saps.gov.za) indicate that 4,828 cases of “Neglect and ill-treatment of children” occurred during this period country wide of which 485 cases were for the Eastern Cape. This does not reflect the numbers of children violated in the various other categories listed e.g. Murder, rape and kidnapping. It also does not reflect the number of criminal acts against children that are committed without being reported to the police.

It is therefore clear that children are a vulnerable element of society that require special care and protection against crime.
2.3.6. Eastern Cape Provincial Department of Safety and Liaison

The Eastern Cape Department of Safety and Liaison developed a Provincial Crime Prevention Strategy (PCPS) that was adopted by the Executive Committee of the Province in May 2006. The PCPS was officially launched on the 24th October 2006, with a number of role players in the Eastern Cape committing to the fight against crime. This launch has ushered in a new era of Social Crime Prevention in the Eastern Cape. Crime Prevention will no longer be viewed as a duty of only the SAPS or the Department of Safety and Liaison. With 60% of murder between people that know each other (September 2006 crime statistics) it is impossible for SAPS to place a “police official in every home”. Therefore the social issues affecting crime need to be addressed. The functions of the Social Needs Cluster departments and related stakeholders are therefore critical for Social Crime Prevention.

The PCPS has four key focus areas. All four of these focus areas require co-operation between national, provincial and local government and all four directly impact on the quality of life for vulnerable children within the Eastern Cape. They are represented graphically in the PCPS as follows:
Safety and Liaison, through the Social Needs Cluster in the Province, works together with other role players to address specific issues of social crime. An example that includes vulnerable children in the Eastern Cape is the Safer Schools Project that is currently underway. Safety and Liaison is a key member of the provincial task team that has been established to address this dire issue. Schools and communities where violence amongst school goes is rampant have been identified and plans that involve many departments and local government are being formulated to address this issue. Vulnerable children are therefore an element of society that the department has significant responsibility for. An identity verification system would go a long way toward enabling the department to protect vulnerable children.

Figure 1.2: Key Focus Areas of Eastern Cape Provincial Government Provincial Crime Prevention Strategy

(www.ecprov.gov.za, 2006)
Safety and Liaison further has a mandate to work toward strengthening the Criminal Justice System. Therefore there is a significant alignment with the South African Police Service and the Department of Justice and Constitutional Development.

2.3.7. South African Police Service


This pamphlet lays out the rights of children, defines a child as being anyone under the age of 18, even non-South Africans and provides a framework for protection of children against child abuse. The pamphlet differentiates between sexual abuse, physical abuse, emotional abuse and neglect.

Amongst the rights of children that the pamphlet emphasises it stipulates that children in conflict with the law have the right to receive special attention. It further emphasises the responsibility of government to ensure that children are protected from those who might hurt them.

This pamphlet shows the significance that the SAPS places on the care for children. By nature of their business the SAPS deals with children that are either in conflict with the law or children that have suffered in some or other terrible manner. Therefore the SAPS is a key government institution in ensuring that the rights of vulnerable children are upheld and that they truly are protected.

2.3.8. Department of Justice and Constitutional Development

In 2005 “30,000 South African children were successfully taken out of the legal system and diverted into educational and life skills programmes instead of serving a sentence or awaiting trial at a correctional facility.”

Despite this apparent success children in conflict with the law are currently handled procedurally in accordance with the stipulations of the Criminal Procedure Act. This Act
does not provide adequate guidance with regard to dealing with children who are criminal offenders. In fact, often the future of a juvenile offender is solely dependent on the benevolence of the prosecutor involved in the case.

"Crimes (committed by child offenders) are increasing, becoming more violent and are happening at an earlier age. On the one hand there is a call for being tougher on crime, where heavier penalties and longer sentences are being encouraged. On the other hand children's rights must be kept in mind when holding them responsible for their crimes."

In order for the rights of children to be upheld the age and history of the offender is required in order to identify appropriate diversion strategies in keeping with the facilities made available by the Department of Correctional Services and its partners e.g. Social Development.

"The root causes of criminal activity of children need to be addressed “…the lack of education, poor socio-economic circumstances and children with little to lose were most at risk of getting involved in crime. He called for the standardisation of diversion policies which are purpose-made counselling, and educational and life skills programmes which deal with the child offender in an efficient and appropriate way.” (http://www.crin.org/violence/search/closeup.asp?infoID=9712, 2006)

With accurate information judges and prosecutors will be able to make the best decision for society and for the child in order to ensure that the child is successfully diverted from criminal activities and a harmful environment to enable reintegration into society.

2.3.9. Department of Education - National

It is apparent that the National Department of Education, by default, has the most dealing with children and the establishment of child centred policies in South Africa. The national department is responsible for setting guiding policy with regard to the educational development of children. However, it is the provincial departments that deal directly with schools, educators and learners.
Numerous statistics are required to assist with policy formulation. These include issues such as numbers of children leaving school after every grade. Further study is then done to determine the contributory factors. These surveys often help to identify vulnerable children. However, without an adequate identity verification mechanism the school drop out rates are often only a best guess. Often the children that have left school are untraceable.

In addition to this, the Department of Education has implemented a programme whereby vulnerable children should receive at least one balanced nutritional meal per school day and that vulnerable children should not pay school fees. There is therefore a need to identify children in these categories in order to ensure that they receive the benefits.

2.3.10. Department of Education – Eastern Cape

In the Eastern Cape the Department of Education currently makes use of the Education Management Information System (EMIS) for statistical information. EMIS is populated through several surveys that are performed at all the schools in the Province on an annual basis. Some of the inherent flaws in the EMIS process are the poor rates of returns from schools and the fact that as the surveys are completed by the schools themselves with no verification process, some information could be misrepresented. As mentioned in section 2.3.9. informed decisions need to be taken by the department in terms of where to intervene with e.g. nutritional programmes and the waiving of school fees. Clear information is required to support these decisions. The EMIS system is evidence that Education in the Eastern Cape is making process in the realm of information management. However, much still needs to be done to ensure that the correct information is available to the relevant sections within Education both Nationally and Provincially to support decision making.

The PNC on ISAD website (www.pnc.gov.za) provides an overview of key e-education initiatives within South Africa. The overarching project driven by National Education currently is the E-Education project. “In the South African context, as defined in the White paper on e-Education, e-Education is “about connecting learners and teachers to each other and to professional support services, and providing platforms for learning”. e-Education is more than developing computer literacy and the skills to access, manage and
create information.” The goal of the White Paper is “to ensure that every South African learner is ICT capable by 2013”. (E-Education White Paper, 2004)

“The following are some of the government-driven programmes in line with the implementation plan of the White Paper on e-Education:

**KHANYA Project**

Khanya project is an initiative of the Western Cape Department of Education, which started in April 2001. The project looks at ways to use information, communication and audiovisual technology to improve teaching and learning in schools. (http://www.khanya.co.za, 2006)

**Gauteng Online**

The initiative for implementing ICTs in Gauteng school falls under the umbrella of Gauteng Online (GoL) driven by the Gauteng Department of Education. (www.gautengonline.com, 2006)

**The National Portal initiative (Thutong)**

Thutong is the Department of Education portal for all educators and learners, specifically aimed at those in grade RTO 12. It has been created to support quality of teaching and learning in South Africa. The portal is part of government’s intention, White Paper on e-Education, to turn South African schools into centres of quality learning and teaching for the 21st century. For more details visit this link: (http://www.thutong.org.za, 2006)

Despite the significant progress indicated above there is still a need for coordination of efforts with regard to information systems within the Education Sector. The statistics that could be available from a system that tracks vulnerable children will be invaluable to policy planners within Education.

**2.3.11. Department of Health**

The National Department of Health has the responsibility of setting guiding policy for health services country wide. The Department of Health, both Nationally and Provincially, has a well developed method of gathering statistical information. Many initiatives (e.g. the Telehealth Project and the District Health Information System (DHIS)) are underway where
technology plays a key role in information management. This information is then used both provincially and nationally to support decision making. As a result of the well established information management processes within Health it is clear that the possibility of aligning a children identity verification system with Health in the Eastern Cape is feasible. It is further apparent that Health would benefit from such as system as it would enable clear information flows regarding children and their interaction with the Health sector and all related areas e.g. a child that is treated for physical abuse can then be traced to ensure that SAPS and a Social Worker have followed up on the incident.

The PNC on ISAD has identified E-Health as a key information development field. “E-Health is used to improve efficiency in the provision of health through the use of information systems for patient registration, diagnosis, data exchange between health professionals to avoid duplication and unnecessary diagnosis procedures thus reducing costs. Patients are afforded an opportunity to participate in their health care thus ensuring quality care.

The use of computerized health information systems improves the management of patients, management of health institutions and provides up to date information for policy and decision making. E-Health provides for distance consultation e.g. A health professional situated in a remote rural area can facilitate a clinical consultation with a specialist situated in advanced urban area or internationally. This will help bridge the distance between the two levels of care (remote rural and advance urban) avoiding unnecessary transfers to higher levels of care as well as avoiding patients to be isolated from their loved ones. E-Health provide for continuous medical education at a distance for health providers especially those that are stationed in rural areas. They receive online education through the internet as well as the use of video conferencing.” (www.pnc.gov.za, 2006)

The following are regarded as the more significant E-Health initiatives within the country.

- “Provincial health / hospital information systems
- Web-based surveillance systems
- Telemedicine
- Closed broadcast channel (Mindset Health)
- Electronic Health Record for South Africa (eHR.za)"
These initiatives clearly indicate the progress made by the department. A child focused identity verification system will therefore be able to interact seamlessly with these systems, encouraging informed decision making within this critical sector.

### 2.3.12. Department of Home Affairs

Section 1.3. provided an extensive analysis of the HANIS system currently being rolled out by Home Affairs. Despite the numerous challenges that Home Affairs faces country wide, and the remaining challenges to the roll out of HANIS, much progress has been made by Home Affairs with regard to the collection and collation of data pertinent to the citizens of South Africa. However, Home Affairs is unable to manage the identity of a child that was not registered at birth. Likewise, children that were registered at birth but run away from home before they are sixteen years old may disguise their name and look. These children then may fall outside of the safety net of Home Affairs.

There is therefore a critical need for a system that Home Affairs can verify data against in order to identify vulnerable children that may not have been previously registered by Home Affairs.

### 2.4. Conclusion

The above section provided an overview of policies affecting vulnerable children at a national and provincial government level. It is clear that numerous government entities have a vested interest in providing care to vulnerable children. It is further apparent, from comparison of the departments referenced above, that there still exists the possibility of children being overlooked when services are being rendered. There is a clear need for a centralised information management system that can provide consolidated information on every interaction of a child with the state.

Only once such a system is in place will departments be in a position to align their services to break the cycle of poverty, minimise crime, improve education services and ensure that all PGDP, National Plan of Action, ASGISA and MDG objectives are fulfilled.
Chapter 3: Theoretical Background – International Perspective

“We want all children to have safe and secure childhoods in which they can develop their full potential. We want to see fewer children suffering from educational failure, experiencing substance misuse, committing crime and anti-social behaviour, or becoming teenage parents. That means giving greater support to vulnerable children and those in care and raising education standards for all pupils.” Margaret Hodge, United Kingdom Young People and Families Minister, 2003)

“The process of protecting children from abuse or neglect, preventing impairment of their health and development, and ensuring that they are growing up in circumstances consistent with the provision of safe and effective care which is undertaken so as to enable children to have optimum life chances and enter adulthood successfully.” (DfES, 2003)

3.1. Introduction

Chapter 2 provided an overview of the efforts of the South African Government on a National and Provincial level in caring for vulnerable children. Chapter 3 highlights a number of noteworthy international efforts toward the protection of vulnerable children. The United Kingdom and Malaysian Governments have developed notable models from which significant value can be derived. The components, uses and shortcomings of these models are analysed in detail and their relevance to the South African context is discussed. In addition to this, an introduction to biometric identification verification methodology trends and standards is presented.

3.2. The United Kingdom Child Index Model

3.2.1. Overview of the United Kingdom Child Index Model

The Every Child Matters Green Paper (2003), drafted with the express focus of “proposing … a range of measures to reform and improve children's care.” (Tony Blair, Prime Minister of the United Kingdom, 2003), is seen as the founding policy document in the United Kingdom supporting the development of a national child index.

The purpose of the Every Child Matters Green Paper is to ensure that no children are overlooked in the countries child welfare efforts by:

“Improving information sharing between agencies to ensure all local authorities have a list of children in their area, the services each child has had contact with, and the contact
details of the relevant professionals who work with them. The Government will remove the legislative barriers to better information sharing, and the technical barriers to electronic information sharing through developing a single unique identity number, and common data standards on the recording of information... We will expect every local authority to identify a lead official with responsibility for ensuring information is collected and shared across services for children, covering special educational needs, Connexions [a sort of truancy register], Youth Offending Teams, health and social services. The aim is for basic information to follow the child to reduce duplication." (Every Child Matters Green Paper, 2003)

John Lettice (2003) provides a background to the drafting of the Every Child Matters Green Paper by introducing Victoria Climbié. The death of Victoria Climbié, a minor immigrant from the Ivory Coast, in England on a falsified passport in 2000, caused a significant review of the child welfare process within the United Kingdom. Victoria Climbié travelled to the United Kingdom in 1999 and was identified as a vulnerable child in need of assistance from the government by a hospital in July 1999 after being treated for injuries sustained in a child abuse incident. Her condition was reported to both the police and social services who made no effort to intervene. She subsequently died in February 2000 from child abuse related injuries.

It is interesting to note that the death of Victoria Climbié was not due so much to a lack of information but rather a lack of responsiveness of government to information provided to it. This is supported by Press Notice 2003/0175 of the Department for Education and Skills (DfES) available online (www.dfes.gov.uk, 2006). The DfES is the Department responsible for the development, implementation and management of the Child Index. This press notice introduces the 2003 Every Child Matters Green Paper by providing an overview of its proposals. “The Green Paper ‘Every Child Matters’ proposes:

- integrated teams of health and education professionals, social workers and Connexions advisers based in and around schools and Children's Centres;
- sweeping away legal, technical and cultural barriers to information sharing so that, for the first time, there can be effective communication between everyone with a responsibility for children;
- establishing a clear framework of accountability at a national and local level with the appointment of a Children’s Director in every local authority responsible for bringing all children’s services together as Children’s Trusts;
- new duties on police, health and others to safeguard children and require them to come together into Local Safeguarding Children Boards;
- children’s services to be judged on joint working through integrated inspection framework overseen by Ofsted; and
- a national campaign to recruit more foster parents and a workforce reform package to make working with children an attractive career, and improve the skills and effectiveness of the children’s workforce; and
- the appointment of an independent Children’s Commissioner to champion children’s views.

The press notice further provides a background to the need for the Every Child Matters Green Paper:

“Today marks a turning point in the way we protect, nurture and support children. In the past there has been a piecemeal approach to reform that has papered over the cracks but left children at risk. The tragic death of Victoria Climbié made us realise that we simply can’t go on like this anymore.” “This Green Paper sets out our plans to reform children’s services in response to Lord Laming’s Inquiry report into the death of Victoria Climbié. It establishes a clear framework of accountability with services for children and young people integrated under new Directors of Children’s Services.” “Child protection cannot be separated from policies to improve children’s lives more widely. We want to reform children’s services to best protect children from risk of harm. At the same time, we want to shift the balance to prevention by providing greater support to all families.” “Children Trusts will bring together children’s professionals to ensure no child falls through the net. Professionals will be able to share information and respond quicker to warning signs.” “Children are a precious resource, as are those that work to protect and nurture them. This radical and comprehensive package is designed to unlock the potential of both children and the children’s workforce. Working together and across boundaries, we can make a real difference to the lives of all children.”
In a December 2005 report, John Lettice provides further insight into the motivation of the government for the development of such a system along with an overview of the key elements of the system. He quotes Ruth Kelly, the Secretary of State for Education who claims that "it is a key part of the Every Child Matters "programme to transform children's services by supporting more effective prevention and early intervention. Its goal is to improve outcomes and the experience of public services for all children, young people and families." Kelly says that better information sharing is "essential for early and effective intervention", and adds that the Index "will provide a tool to support better communication among practitioners across education, health, social care and youth offending. It will allow them to contact one another more easily and quickly, so they can share information about children who need services or about whose welfare they are concerned."

In order to ensure that all children receive the care that they may require at any given time, the Every Child Matters tool will capture information relating to all children (estimated 11 Million in the United Kingdom). The system will contain basic identifying information for each child, namely: name, address, date of birth, gender, contact details of parents or carers, contact details for their educational institution, contact details for their GP and all other practitioners working with them. Where a practitioner considers it necessary there will be an indicator stating that other practitioners should contact them as they have important information to share about the child. The system is not intended to be a case management system and will not provide any individual case data.

3.2.2. Components of the United Kingdom Child Index Model
The Information Commissioner in the UK initiated a research project focusing on Safety and Privacy Concerns regarding Children's Databases in the UK. A key part of the research, performed in 2006 by the Foundation for Information Policy Research, was to analyse all databases with child related information. A detailed analysis of the UK Child Index is available in this report. The key components of the development plan for the system are therein identified as:

- the fact that the index is not a substitute for case record system used by role players such as health and social services;
- the plan to initially populate the system and update information without losing any critical information (processes for data entry) needs to be developed;
o the need to interact with the legislative environment and to communicate with the
general public regarding the fact that consent is not required from families before a
child’s details are recorded on the system;
o a clear definition of organisations that will have access to the system. There are
those must have access from a statutory perspective and others that will need to
apply for access;
o the design of the index will focus on a centralised biometric enabled system;
o security arrangements to ensure that unauthorised persons never compromise the
system and that all applicants for access are adequately screened before allowing
access. Regular inspection of audit logs in real time is a further key security activity;
o the development and implementation costs for the system are estimated at 224
Million pounds over 3 years with an expected 41 Million pounds in annual operating
costs thereafter;
o criteria that practitioners should use to determine whether to flag their interaction
with the child on the system still need to be finalised by the UK government.

3.2.3. Implementation of the United Kingdom Child Index Model
During 2006 the United Kingdom Information Commissioner initiated a research project on
‘identifying the growth in children’s databases and assessing the data protection and
privacy implications’. Its aim is to provide the Commissioner with a comprehensive view of
current and proposed databases, particularly in the public sector, their extent, their role,
and their potential effect on the privacy of individuals. It is also to provide an authoritative
basis from which the Commissioner can develop his policy on data protection, and
contribute more widely to the debate on this issue, and to public policy generally.

3.2.4. Shortcomings of the United Kingdom Child Index Model
The 2005/2006 Annual Report of the Information Commissioner presents the formal
opinion of the Information Commissioner’s Office with regard to the Child Index. It
indicates that the scope of the database should be limited to only those children who are
considered to be at risk as opposed to including all children in the UK. The report further
notes that support is being given to the Department for Education and Skills, the
department responsible for the Child Index with regard to ensuring the implementation of
good practice in information management, security, retention periods for information held and access controls.

Should the system attempt to use algorithms on its data to identify high risk children unfair discrimination against good kids in difficult circumstances may occur. Special care must be taken when using the system as means of identifying children in need of intervention to ensure that children and their families are not victimized in the process.

In addition to this, Lettice (2005) expresses two major concerns with the proposed system. Firstly, he is concerned that a large amount of pro-activeness will be required on the part of the various practitioners who may deal with a child as the system only provides the contact details for other practitioners that have dealt with the child and an urgent contact flag if a prior practitioner felt it necessary. Therefore, if a practitioner is not proactive he / she may not make the required follow up phone calls and may not obtain information critical to assisting the child at that given time. A related concern is that other practitioners may flag their interaction with the child as urgent only if they feel it necessary, which may further result in timeous information sharing not occurring. Secondly, one centralised database, being accessed by numerous government and non-government organisations and containing contact details for all children in the United Kingdom, is a incredible privacy and security risk. A paedophile who accesses the database illicitly will not only have access to the contact details of all children in the United Kingdom but will also be able to contact any one of the practitioners that has helped the child. The danger to the lives of children, should this happen, cannot be overstated.

Further concerns with the system have been raised by Kablenet, in a September 2006 article entitled “Teenagers Wary of New Children’s Database” who claims that “Research by the Office of the Children’s Commissioner (OCC) has revealed that the Children's Information Sharing Index is causing anxiety and arousing suspicion.”

Teenagers taking part in the survey claim that they may not make use of mental health and family planning services if this information will be captured on the system. The main concerns raised were regarding the centralisation of such a large amount of data and concerns regarding the securing of the system. A further concern raised was whether or
not the system would be kept up to date, no teenager wants to be assessed based on outdated information. In addition to this, the teenagers requested that teachers not have access to the system. They expressed a concern that teachers may share information about them e.g. about bullying that may result in greater risk.

The recommendation of the OCC is that serious consideration should be given to the maintenance of the quality of the data on the system. It does appear however, that children, the ultimate beneficiaries of the system, are not supportive of its implementation and that much public relations work is required to improve the image of the system.

In addition to the concerns raised by the children, there has been a measure of public uproar by parents against what is viewed as a move by government to fingerprint all children in the United Kingdom, with or without express parental consent. A parent’s campaign group leavethemkidsalone.com (www.leavethemkidsalone.com, 2006) has been established and has a growing support base of disgruntled parents who claim that their children have been fingerprinted at schools with no parental consent. www.leavethemkidsalone.com claims that 700,000 primary school aged children have been fingerprinted at over 3,500 schools, many without parental consent. They believe that this is part of the government wide initiative to register all children on the Children Index envisaged in the Every Child Matters Green Paper.

However, the schools involved claim that the use of a biometric system for learners is primarily to provide an attendance tracking service and are adamant that biometric information relating to children will not be shared with any third party. (Ballard, 2006)

In a prior article (7 September 2006) Ballard notes that the DfES is adamant that parents cannot lawfully prevent schools from taking their children’s fingerprints, a perspective that parents voraciously dispute.

There therefore appears to be a breakdown in communication between schools, parents and policy makers with regard to both the school attendance management systems and the proposed Children’s Index with parents resistant to the implementation of both systems. It
appears that a publicity campaign and consultative process, targeting parents and children, is required in order to address the concerns of the parents.

A further shortcoming of the model is that, despite a 2008 deadline for the implementation of the system a number of key factors have yet to be finalised e.g. the type of biometric scanning technology to be used and the development of the centralised database.

3.2.5. Relevance of the United Kingdom Child Index Model to South Africa

The United Kingdom Child Index Model is relevant to South Africa in that it demonstrates that cooperative governance initiatives can work effectively.

15 Local Councils in the UK have run pilot projects (Trailblazers), each making use of a different information system to support the information sharing initiative. A 2004 University of London interim report on the Trailblazers, written by Cleaver et al, provides a number of recommendations to institutions planning to develop a similar system. These include:

- Find out exactly what information is available and what information systems are available;
- Clarify exactly how the system will dovetail with existing child strategies, developments and initiatives;
- Understand the legal implications of information and data sharing;
- Change management is a key component of the implementation of such a system as it will impact on the way in which many practitioners perform their functions;
- Have a clear vision for what is to be accomplished;
- Ensure that all parties involved have shared values with regard to the role and function of the system;
- Start with quick wins – start with a small implementation that can be built on. The system can be rolled out in a number of phases;
- IT must not drive the solution, the needs of people and organisations must provide the driving force;
- Clear consultation with children and their families is required throughout the development and implementation process;
- Ensure that sufficient time is set aside for every phase of the system;
o Marketing and communication of the system and the concepts behind it to government, NGO’s and the general public is key to a successful implementation;

o Project management is key – clear budgets, resource requirements and time frames are required together with communication of the project plan. The project plan should however, retain a measure of flexibility;

o Ensure ongoing commitment from senior officials and political champions of the system;

o A designated, credible project manager with sufficient authority is required in order to drive the project;

o Ensure that a multi-agency team leads the project;

o Ensure that all members of the project team are able to make decisions on behalf of their organisation;

o Ground work needs to be done to win the support of line managers and practitioners;

o Involve a wide range of departments, NGO’s and other agencies early in the process to obtain as wide a range of input as possible;

o “Take people with you on the trip – not as passengers or as hostages”

o Agree on the importance of information sharing and get buy in to this principle;

o Commitments made must be specific and actions agreed to must relate directly to the shared goals;

o Spread the net of involvement as widely as possible – include NGO’s, the community and even the private sector.

These recommendations can be applied directly to the implementation of a similar model in the Eastern Cape.
3.3. The Malaysia My-Kad System

3.3.1. Overview of the Malaysia My-Kad System

“With a population of 23 million, the country of Malaysia has proven itself to be a technological innovator, improving government service to citizens and increasing economic activity for the entire nation. The Government Multi-purpose Card (GMPC) project is part of Malaysia’s Multimedia Super Corridor (MSC) initiative—designed to attract leading-edge technology development to Malaysia.” (www.unisys.com/public_sector, 2006)

The Malaysian GMPC (or “My-Kad” System) is a ground breaking programme aimed at issuing every citizen with a smart national identification card. The purpose of this card is to streamline the interaction of citizens with the government and certain private sector organisations (as they embrace the technology).

“By the end of 2005, all Malaysian citizens over the age of 12 will be carrying a dual interface contact / contact-less smart card as their national ID. With a population of 23 million, the Malaysian program is both one of the world’s first national ID card programs and one of the largest issuances of dual interface technology. The multi-purpose MyKad cards incorporate both government and private sector applications onto a single card.” (Clarke, 2005)

The “MyKad” is considered as the first national smart identification card scheme in the world to store biometric data (in this case fingerprints). (Knight, 2001)

The “My-Kad” system is significant as no other government worldwide has attempted such a large rollout of a smart identification card for all citizens and because Malaysia is still a developing country in many ways. There are therefore numerous lessons to be learnt, both from the model developed for the use of the card and the challenges involved in issuing the card to all citizens and managing the use of the card. The purpose of this section is to
provide an overview of the “My-Kad” model and identify key lessons thereof that can be applied to the South African context.

3.3.2. Components of the Malaysia My-Kad System

The “MyKad” system has a number of stated purposes, namely:

- Identity Card, including fingerprint biometric;
- Driver's license;
- Limited passport use (mainly Malaysia’s neighbours but excluding Singapore);
- Health information;
- e-Cash Card for low value transactions;
- Banking (as an ATM type card);
- Malaysia Public Transportation System;
- Digital signing.

![Example of MyKad Smart Card](http://en.wikipedia.org/wiki/MyKad, 2006)

In addition to this, all Malaysian children will be issued with a “MyKid” card at birth. This will be upgraded to a “MyKad” card at twelve years of age. The “MyKid” card will contain the following data:

- Personal information of the child and limited information of the parents of the child;
- Health information;
- Educational information;

It is interesting to note that the “MyKid” card does not contain any biometric information nor does it contain a photograph of the child.

However, it has been reported that Malaysian Police are proposing a system whereby all new-born children should be fingerprinted before leaving hospital. It is believed that software will be able to suitable alter the captured fingerprints to allow for the changes that come with growth and aging. (Oates, 2005)

This process will most likely be linked to the “MyKid” smart card system. To date however, it appears that no progress has been made on this proposal.

3.3.3. Implementation of the Malaysia My-Kad System

Datuk Azizan, former Director General for the National Registration Department (the lead government agency for the rollout of the project) provides some insight into some of the challenges surrounding the “MyKad” project.

“We faced two major challenges when we embarked on this project,” continues Datuk Azizan. “The first one was technology, and the second was changing the mindset of the people to accept the new card. To address the technology challenge we evaluated leading edge technologies and chose the best suited for our needs. We used the latest chip and biometric technology to ensure the data on the card are accurate and secure. Now, with a thumbprint image, photograph and surface information, we can verify the cardholder’s identity with a card acceptance device (CAD) rather than the naked eye. This helps prevent forgery and misuse of cards.”

Regarding citizen acceptance, the government automatically issues MyKad to all citizens who reach the age of 12 and to any who have lost their old national identification cards. For the rest, says Datuk Azizan, “we used media outreach to educate people on the benefits of the multipurpose card, conveying the convenience it offers.” (www.unisys.com/public_sector, 2006)
The system was launched in 2001 with two features functional namely, the identity card and the drivers license. The other functions, as mentioned above, are being phased in consistently.

3.3.4. Shortcomings of the Malaysia My-Kad System

The Malaysia identity management system is one of the most centralised and controlled in the world at present. As a result it appears that not all Malaysian’s are supportive of this system although many Malaysians have numerous concerns. The article “Identity card paranoia – is it unfounded?” on the Malaysian Youth Blog “theCICAK” (Yeusuff, 2006) raised a heated debate amongst readers, especially those from the United Kingdom and Malaysia. The United Kingdom is rapidly moving toward a centralised, smart card driven, identity management system, while Malaysia has already implemented one. Readers from both nations expressed an overwhelming concern that the centralisation of a large amount of data about every individual makes identity theft a very real threat. This concern together with fear of control from a centralised government and the question of trust – the current government can be trusted but what if there was a significant change in government and government policy – appear to be the main areas of resistance to this type of system.

A major implementation concern raised by the Government of Canada research into PKI systems globally (2003) is that numerous members of the public who have the card are unaware of the benefits and uses of the card. In addition to this numerous stores and banks do not have the required technology in place to make use of the card. It therefore appears that a shortcoming of the MyKad system is the lack of consultation with the private sector and other bodies that may need to use the card and the lack of marketing of the card to the general public.

3.3.5. Relevance of the Malaysia My-Kad System to South Africa

"The journey into the digital era has not just ended with this launch [of MyKad], rather; this is the beginning of a new era of civilization." (Dato Seri Dr. Mahathir Mohamad, Malaysian Prime Minister, 2003).
Malaysia, unlike the United Kingdom is considered a developing country and is similar to South Africa in many ways. Therefore lessons learnt from the successful implementation of such a system should be noted. These lessons include:

- The need for significant endeavours to inform the general public about government initiatives and to enter into a dialogue with them about the system;
- The need to consult with banks and other service providers who government would like to have as partners in the use and distribution of the smart card;
- The MyKid system appears to have no clearly stated goal although it has potential to add significant value to the country;
- The MyKid system is well positioned to play a key role in information sharing between the different organs of state in Malaysia that deal with children;

The lessons learnt from the MyKad and MyKid system will be incorporated in the planning and implementation of a model for the Eastern Cape in South Africa.

3.4. Overview of Biometric Identification Verification Technology

Much debate and discussion has arisen around identification verification methodologies and the use of biometric based systems. This section defines identity verification and analyses developments in the biometric field. It is shown that fingerprint based identity verification is currently the most accepted, commercially available, reliable and robust form of biometric identification.

3.4.1. Definition of Identity Verification and Biometrics

Jain et al (2000) note that knowledge based and token based identity verification systems have been the traditional mechanism used. Knowledge based systems rely on what the person knows e.g. a pin code, while token based systems rely on what a person has e.g. a card, a key. The disadvantage of these traditional methods is that what you know may be forgotten or guessed and what you have may be lost or stolen. A key shortcoming is that aside from the token or pin code, the system has no means of distinguishing between an imposter and the true user. This is an extremely unsatisfactory state of affairs. Therefore an identification verification system that relies on a physiological characteristic (what you are) is extremely desirous.
Identity verification is defined as:

- “biometric identification: the automatic identification of living individuals by using their physiological and behavioural characteristics; "negative identification can only be accomplished through biometric identification"; "if a pin or password is lost or forgotten it can be changed and reissued but a biometric identification cannot" (www.wordnet.princeton.edu/perl/webwn, 2006)

The above definitions are supported by the following description from the SearchSecurity website:

“Biometric verification is any means by which a person can be uniquely identified by evaluating one or more distinguishing biological traits. Unique identifiers include fingerprints, hand geometry, earlobe geometry, retina and iris patterns, voice waves, DNA, and signatures” (SearchSecurity, 2006)

It is clear that in order for the unique identity of an entity to be determined unique identification information is required. In the case of determining the identity of a person biometric verification can be used, where the identification information is either a physiological or behavioural characteristic.

FindBiometrics.com, a website committed to the study of biometric technology identity verification trends on a global basis, provides a deeper understanding of the terms identification and verification:

- “Identification and recognition are, essentially synonymous terms. In both processes, a sample is presented to the biometric system during enrollment. The system then attempts to find out who the sample belongs to, by comparing the sample with a database of samples in the hope of finding a match (this is known as a one-to-many comparison).
- Verification is a one-to-one comparison in which the biometric system attempts to verify an individual’s identity. In this case, a new biometric sample is captured and
compared with the previously stored template. If the two samples match, the biometric system confirms that the applicant is who he/she claims to be.”

3.4.2. Types of Biometric Identity Verification Systems and Standards in Operation

The Separated Children Europe Programme (SCEP), in the 2006 “Position Paper on the Use of Biometric Data” note that one of several biometric identity verification systems can be utilized order to perform identification verification of an individual. These systems include:

- Fingerprints
- X-rays
- Iris scans
- Examination of DNA
- Face recognition - digital photographs

The SCEP has a network of non-governmental organizations across 30 countries in Europe. SCEP is committed to the full implementation of the United Nations Convention on the Rights of the Child. SCEP aims to establish a shared policy for countries to guide them with regard to managing separated children and with regard to the use of biometric data in this process. This policy will ensure that the rights of these children are ensured in line with the United Nations Convention on the Rights of the Child.

The SCEP policy does not propose any specific biometric system but rather provides guidance with regard to the use of biometric systems in supporting separated children. It has the following to say regarding the use of biometric systems in connection with children: “The use of biometric testing can make a beneficial contribution to practice concerning separated children. For example, there is scope for biometric testing to be used positively in the reuniting of families separated across Europe. However any potential benefit needs to be balanced against ethical, practical, financial and administrative considerations. The use of biometric data is currently in its infancy and as yet there is little knowledge about possible drawbacks. Article 8 of the European Charter of Human Rights refers to an individual’s right to respect for private life and implicit within this is the respect for the
individual’s physical integrity. Throughout any procedures using biometric data human dignity should be fully respected. All personal data should be obtained fairly and lawfully and it should only be processed for specific and legitimate purposes. Although most biometric systems are deemed to be reliable it could be dangerous to put too much trust in them, as a recent experts’ report points out:

‘An absolutely certain match or non-match between the enrolled data and the data subsequently submitted to the system is technically unfeasible. The use of a system based on biometric data relies inevitably on a mere statistical certainty. There is no zero default system. If the enrolled and submitted data match with a sufficient degree of probability, the data subject will be recognized by the system. Biometric systems are thus inherently fallible.’” (Kanics, 2006).

The SCEP standards are aligned with developments in the European Union toward a common approach to the use of biometric identification verification systems for children.

The European Union (EU) is intending to make use of a consistent approach in the use of biometric identifiers in storing facial images and fingerprints in the chip of a passport. “By Council Regulation No 2252/2004 of 13 December 2004, in accordance with ICAO provisions, it therefore decided on biometric storage of a facial image and two fingerprints.” (Council of the European Union, Regulation 9403/1/06 Rev1, 2006)

With regard to the identity verification of children, a study conducted by the Netherlands Ministry of Interior and Kingdom Relations, was used as a guiding document by the EU Council.

The study noted that children below the age of twelve years are not suitable subjects for biometric face recognition through the use of a photograph. With regard to fingerprinting children, it notes that children over the age of six have recognizable fingerprints. However, these prints are subject to marked change and fairly advanced and expensive software is required in order to update the image of the system. The guidelines of the EU Council Regulation 9403/1/06 Rev1 (2006) with regard to a minimum age for storing biometric information of children on the smart chip of a passport is as follows:
**Facial Image:**
- over 12 years – compulsory
- 0 – 12 years – dependent on the member state

**Fingerprint:**
- Over 12 years – compulsory
- Over 12 years – dependent on the member state

Recent developments in mobile technology have resulted in biometric identification systems that do not require on fixed devices connected through a cable to a mainframe or server in an office building. Developments in the United Kingdom and South Africa are discussed below.

The BBC (2006) reports that Police in the United Kingdom have began piloting a wireless fingerprint reader (using cell phone technology – GPRS) to help identify people using false identities. The system will be used in conjunction with the Automatic Number Plate Recognition team who identify vehicles of interest for further investigation. At present it is estimated that 65% of drivers stopped by police make use of false identities. The handheld device has an accuracy of 94-95% and will only be used for identification purposes. Prior to the system police would have to arrest a citizen and take them to the nearest police station to verify their identity. The new system (making use of a handheld device no larger than a standard PDA) allows police to send an imprint of both index fingers via GPRS to a national database of an estimated 6.5 million records for verification in a process that takes no longer than 15 minutes.

A key element of the success of the project has been the use of the mobile handheld devices that are able to both take fingerprint images and transmit them, via GPRS, to the national database for verification. Glazier (2006) emphasises the fact that the major advantage of the system is that it saves both the police and the public time and energy.

The process is voluntary for citizens at present but there are concerns that once the system proves its effectiveness and becomes standard operating procedure the laws governing its use may begin to infringe on the privacy of citizens.
Weidemann (2004) reports that biometric based GPRS enabled identity verification systems have been commercially available in South Africa since 2004. Beget Holdings, a Johannesburg based company, has been retailing a system known as “MobileBio”. The system transmits fingerprint data to a central server via GPRS and requires neither cards, nor supporting computer hardware or software. The centralized system can then be accessed through a web browser whereby records can be edited and reports can be drawn.

“The most commonly known method of biometric identification is fingerprint biometrics, which is used by police forces throughout the United States and in more than 30 countries. DNA identification is also a popular and increasingly non-controversial use of biometric technology. Other biometrical methods of identification include retinal and iris scans, hand geometry, facial feature recognition, ear shape, body odour, brain fingerprinting, signature dynamics, voice verification, and computer keystroke dynamics. Fingerprint biometrics and hand geometry systems are among the systems most ready for widespread use…”

A summary of the advantages and disadvantages to the use of biometric solutions reveals that Fingerprints are widely recognised as the most reliable and commercially available form of biometric identification verification technology:

- “Voice prints can be used to make identifications over the phone. Institutions such as banks are looking at the technology to protect against fraud, but accuracy can be affected by illnesses such as colds, and by background noise.
- Facial recognition is the biometric of choice for all new UK passports. Facial features create a unique template and can be recognised from photos or videos, but the technology can be fooled by ageing faces and by coverings.
- Iris scanning is a fast and easy method of identification, but contact lenses and cataracts can distort readings, and some brown eyes have proved harder to scan than other colours.
- Fingerprints are regarded as one of the best developed of biometric recognition technologies, but some prints are not pronounced enough to be read, and can be affected by scarring and injury.”
It is clear from the above that fingerprints are currently the most commercially available and reliable form of biometric identification technology and that fingerprints can be successfully used with children six years and older.

However, despite the number of advantages of a biometric system, including the ability to remotely access a centralized server and have a result in a matter of minutes, a survey conducted by EQUS Group Inc called the “IT Outlook for 2007” has found that 66% of high level IT decision makers had no plans to implement biometrics while 51% had no plans to implement smart cards. 15% of respondents had already implemented smart cards against an 8% that had implemented biometrics.

A hybrid smart card / biometric reliant system is often utilized in order to enable the verification i.e. one to one comparison of an individual’s identity. An example of this process is the smart card system used by ALLPAY and CPS, the Social Security Grant Payment contractors currently operating in the Eastern Cape. A Social Security beneficiary presents his / her identity document and smart card to an official at a paypoint. The official swipes the card through a scanner and the system then asks for a fingerprint from a randomly selected finger. The smart card indicates to the system who the beneficiary is and the fingerprint provided is then matched directly to the beneficiaries details on the system. Without the smart card the system would have to do a one-to-many search – scanning through the records of all beneficiaries with the hope of finding a match. This process would be impractical and time consuming, and would require a large amount of processing power on the central server. Therefore it is essential that a biometric identification verification system makes use of some method to enable one to one searches to occur.

3.4.3. Essential Criteria for Use in an Identification Verification System Targeting Vulnerable Children in the Eastern Cape

Jain et al (2000) indicate that when developing a biometric solution a number of issues need to be considered:
“An ideal biometric should be universal, where each person possesses the characteristic; unique, where no two persons should share the characteristic; permanent, where the characteristic should neither change nor be alterable; and collectable, where the characteristic is readily presentable to a sensor and is easily quantifiable.

In practice, however, a characteristic that satisfies all these requirements may not always be feasible for a useful biometric system. The designer of a practical biometric system must also consider a number of other issues, including:

- **Performance**, that is, a system's accuracy, speed, robustness, as well as its resource requirements, and operational or environmental factors that affect its accuracy and speed;
- **Acceptability**, or the extent people are willing to accept for a particular biometric identifier in their daily lives;
- **Circumvention**, as in how easy it is to fool the system through fraudulent methods.”

An identification verification system required for use with vulnerable children in the Eastern Cape therefore has the following essential criteria:

- **Performance** – it should be able to provide a result to any part of the province within a number of minutes. The process of interaction with the system should take no less than 15 minutes per child;
- **Connectivity** – the system should work with both GPRS technology or through more conventional wired systems;
- **Acceptability** – the system should be designed and introduced to children in such a manner that it is not seen as an invasion of their privacy and something to fear. Fingerprints are often associated with the police and children should be reassured that having their fingerprints taken by the system is not an indication that they are suspected of a crime;
- **Circumvention and security** – the system should be designed and implemented in a manner that ensures that only valid users are able to access key components of the system. In addition to this the acceptable failure rate of the system has to be established in order to ensure that the highest possible care is taken to accurately identify a child;
Ease of use – the system should be user friendly and should cater for staff that have no or minimal computer literacy.

Minimal indicators – the system should contain limited information about each child and should require limited data input in order to

Fingerprint based biometric – as it has been proven that fingerprints are currently the most widely used form of biometric indicator the system will record all 10 fingerprints of a child upon registration.

Therefore, although biometric technology can be used to support and care for vulnerable children there is a responsibility to ensure that the technology is used in a prudent and lawful manner and that the privacy rights of children are upheld. The inherent flaws of the biometric identification system should be noted and compensated for in the various controls and procedures surrounding the use of the system. In other words, other available identity verification information e.g. name of the child, should be verified on the system in addition to the biometric identification process to ensure that the results obtained are correct and to facilitate a one to one verification.

3.6. Conclusion

The above sections have provided an introduction into international efforts to protect and care for vulnerable children. It is clear that children are afforded significant value in government policy world wide and that the need to protect and provide for children is a universal truth. From an analysis of biometric solutions available it is evident that the use of a fingerprint, through a fingerprint scanning device, is still the most reliable biometric indicator available.

Chapter 4 provides a high level process design for a biometric identification verification system that is able to track the interactions of vulnerable children with government within the Eastern Cape. This process design will be based on the lessons learned from the international perspective while taking into account the unique environment that is South Africa.
Chapter 4: Proposed Identity Verification Framework for Vulnerable Children in the Eastern Cape

Government’s current efforts for growth and development focuses on: achieving higher rates of investment in the economy, increasing the competitiveness of the South African economy, broadening the participation in the economy, improving the capacity of the state to deliver, and contributing to a better world. Universal access to ICT services can have an impact on all these areas, and has already contributed to an environment conducive for small and growing players to thrive in. (Thabo Mbeki, President of the Republic of South Africa, 2006)

“Before me I see the beauty of our rainbow nation! What excites me is that I am talking to you as leaders of tomorrow. Amongst you I see the future President of this country. I see people with dreams to become engineers, pilots, doctors, researchers, politicians etc. There used to be a young girl who every time she went to school would see this old man chiselling away at the sculpture. She wondered why this old man made such a noise beating away at this iron sculpture. But as she went past everyday this sculpture took some kind of shape. Eventually one Friday as she went past she saw that the old man was happy and he was looking at a shiny, beautiful sculpture of a lion. The young girl asked the old man, “Tat’ omkhulu, how did you know that the lion lived inside this iron?” The old man said to her, “in every one of us there is a powerful lion waiting to be jump out”. That is what your parents, the government through such projects, the nurses when they advise you and the church or synagogues when they teach you, are trying to do. It is to model a lion out of you, a lion that will succeed and become a better person one day.” (Nosimo Balindlela, Honourable Premier of the Eastern Cape, 2006)

4.1. Introduction

Chapter 3 reviewed systems and policies currently implemented internationally with the purpose of caring for vulnerable children. The overriding theme is that in order to be able to correctly protect a vulnerable child both the identity of the child must be ascertainable and an overview of the interactions of that child with the state must be available. Chapter 3 further explored the numerous types of biometric identity verification systems available and identified fingerprints as the most widely used method.

Chapter 4 proposes a child centric identity verification model for implementation in the Eastern Cape. The Eastern Cape will act as a pilot of the system, which if successful could be rolled out throughout South Africa. A high level overview of the requirements and functionality of such a system within the Eastern Cape will be presented.
The information needs of the Eastern Cape Provincial Government and of key National Departments working in the Province, with regard to vulnerable children, are considered in the development of this model e.g. Social Development, Eastern Cape may need to know which practitioners from Health have dealt with a particular child and when their details were recorded on the system or a police officer may need to know which Social Development staff member is assigned to the case of a child recently taken into custody. The strengths of the United Kingdom Child Index, with its minimalist emphasis on key information e.g. contact details of practitioners involved with the child will be incorporated into the proposal for the Eastern Cape. This approach makes the system user friendly and encourages information sharing while guarding the confidentiality of the child. Lessons learnt from the benefits and shortcomings of the Malaysian “MyKad” and “MyKid” systems with regard to the establishment of one identification verification system that is able to integrate information from a number of government and private sector data sources are incorporated into the proposal.

4.2. Purpose and Scope

As proposed in the United Kingdom Children’s Index, the system should not be seen or treated as a case tracking system. Rather, the basic details of the child, linked to a unique biometric identifier will be captured. In addition to this, the system will merely capture the details of each government body that the child has interacted with, the date of the interaction, a reference number for that interaction between the child and the state and the contact details for the relevant Social Worker / government employee / NGO employee who is responsible for the child. The goal of the system is to enable the official dealing with the child to firstly correctly identify the child and secondly, to have a sense of which organs of state the child has interacted with previously and what the contact details are of the individuals that have dealt with the child. If this system can be developed with a minimum number of key indicators as proposed it will then act as an information sharing device, critical to ensuring that vulnerable children are cared for and protected. The onus will be on practitioners to place a flag on the system if they feel that they have critical information to share regarding a child. This should be a mandatory action and some form of penalty should be employed if practitioners are holding back important information.
It is critical that such a system does not add to the work load of an already strained social welfare structure in the Eastern Cape. It is therefore essential that minimalist amount of detail be required by the system and that accessing the system is not a time consuming activity as practitioners will not use a system that requires significant extra effort. The second advantage of a minimalist approach is that it contributes toward ensuring the privacy of the child.

In addition to this, if this system is going to succeed in the Eastern Cape it will require a Provincial Government Executive Committee decision (the highest political body in the Province) mandating all government departments and agencies in the province to use it. In addition to this, use of the system will have to be a mandatory part of the job description of all employees who should use the system.

With regard to the scope of the system, it is important that a clear distinction between a services based interaction between the child and the state and a needs based interaction between the child and the state is drawn. A services based interaction could be the school a child attends or the routine doctor’s checkups at a local clinic. A needs based interaction could be a child that is arrested, a child that is ill and in hospital or a child that has been abused in some manner. In order to focus and streamline the rollout of the system only needs based interactions between a child and the state should be recorded.

Departments and agencies that deal with children may have their own systems that manage their interactions with these children. The system as proposed will not duplicate these systems but will rather act as an independent, centralized register.

4.3. Technological Requirements

The following technological issues are considered:

1) type of system that should be used (client / server, web-based, terminal access)
2) Access control to the system
3) Issues related to the use of fingerprints as an identifier e.g. false positives and false negatives
4) Verification of the identity of the child without a smart card or other identification token
5) Overview of the types of data that will be captured by the system
6) Updating the system from other government systems

It is advisable that a web-based system running within the Virtual Private Network (VPN) of the Eastern Cape Provincial Government (ECPG) be implemented. The advantage of a web-based system is that it can be accessed from any device with connectivity to the VPN of the ECPG. There is no need for any software to be loaded onto any of the personal computers accessing the systems and all software updates are made once to the central web server. Even mobile users, making use of a laptop with a GPRS/3G/HSDPA card will be able to access the system directly. Alternatively, a mobile biometric device with integrated GPRS functionality such as those used by the UK police service can be used seamlessly.

Clear access controls will need to be built into the system to ensure that only authorized users access the system. All practitioners applying for access to the system will need to go through a vetting process to ensure that they are safe to use the system. Additionally, a systems administrator should be appointed with the overall responsibility of maintaining the system and ensuring its data integrity. Various access levels will have to be created and audit logs of all activities of users of the system will need to be reviewed on a regular basis. If a number of different practitioners access the records of the same child within a specific time period but details regarding the child are not updated then the child may be in a vulnerable situation that not one of the practitioners is responding to. The systems administrator would then be able to call for an investigation into the situation of the child. This is in line with the proposals regarding the United Kingdom Model as recorded in the Information Commissioners 2006 report on child related databases in the country.

A robust, reliable, fingerprint scanning system and hardware device will have to be used in order to ensure that the quality of fingerprints taken from the child are clear. Further to this, the system needs to be configured so that a balance is struck between false positives and negatives. It is better that the system rejects a correct child than that it attributes the incorrect identity to a child. Other processes can always be followed to verify the identity of
a child that the system cannot find but treating a child based on information relating to another child could be harmful.

A key component of the technical design of the system is the ability of the system to perform a verification of the identity of the child (one to one). This will enable the system to give a result to a practitioner within an acceptable timeframe. Significant processing power is required should the system need to perform a one to many identification of the child, thereby slowing down the response time of the system and utilizing processing power which is required to handle the multiple requests that will be coming to the server. The Social Security Payment Systems used by ALLPAY and CPS do not perform one to many searches as there is insufficient processing power available for this. As mentioned in Chapter 3 CPS and ALLPAY make use of a smart card which tells the system who the individual is. The fingerprint from the individual is then compared to that stored on the system.

On the other hand, the system needs to run so that it is not dependent on any token (what you have) or and password / pin code (what you know) as vulnerable children in the Eastern Cape will most likely not have a card on them when interacting with the state and should not be forced to recall a specific number. Therefore the Eastern Cape system requires some means to enable verification to take place without a token or specialized knowledge. In order to facilitate this it is recommended that the name of the child will need to be captured (together with all nicknames and alternates) as part of the base data of the system.

The system should at least contain the following basic information per child to ensure that they are receiving support from the government (findings of the UK Information Commissioner (2006) regarding the basic information proposed for the United Kingdom Child Index has been utilized as a guideline):

- The name, address, date of birth, gender, a unique identifying number, name and contact details of a person with parental responsibility or care of the child,
- name and contact details for school or other educational setting, and names and
- contact details of GP practice and of any health visitor or equivalent;
Children and parents will have the right to see their information and challenge it if it is wrong. A process for this will need to be developed and communicated to the communities.

The system should ideally have live links to case management systems and management information systems used by other departments. Changes to the details of the child on these systems should automatically be pushed through to Eastern Cape Index. When the Eastern Cape Index is created, relevant information from available systems should be imported directly and put through a data cleansing process. However, to maintain privacy the Eastern Cape system should not update any of these systems. Also, any changes made to the Eastern Cape system should clearly be shown on the system with the replaced data still being available if required e.g. the physical address of a child is changed but in actual fact the one parent still stays at the old address. That address will then be a key component of the case documentation of the child.

4.4. Implementation Plan

In order for the successful implementation of the system within the Province a number of steps should be followed. Firstly, the concept of the system needs to be approved. This would require the drafting of a Cabinet Memorandum that would be presented at the Social Needs Technical and Cabinet Committees in the Eastern Cape. Once buy-in is obtained from these committees the Cabinet Memorandum would then be forwarded to the Executive Committee of the Province for approval. The custodian of the Cabinet Memorandum may even be called to make a formal presentation to the Executive Committee. Once the Executive Committee approves the system it is signed off by the Premier of the Province.
It is then given to the Social Needs Technical Committee as a project to be monitored and managed. A major challenge within government in South Africa is the amount of bureaucracy surrounding the allocation of budget to any one initiative. Due to the transversal nature of the proposed system it should possibly be developed and managed by the Office of the Premier in the Eastern Cape. Relevant departments can then be called to assist the process as and when required.

The Office of the Premier will most likely appoint a project manager for the system based in the Special Programmes Unit (a Unit in the Office of the Premier dedicated to the care for the vulnerable members of society – the aged, children, those infected by and affected by HIV and AIDS, the disabled and other marginalized groups). The Provincial Information Management Unit (PIMU) will be called upon to provide a technical project manager to drive the development and implementation of the system from an IT perspective. With the development of such a high profile system significant buy-in will need to be obtained from staff at the Office of the Premier and from the various government departments working with children in the Province. It is therefore critical that a technical team with representatives from all affected organisations is established by the project managers as soon as possible. This will facilitate communication and will provide all relevant roleplayers a chance to provide input into the development of the system. This technical team can then also provide users that will pilot and test aspects of the system as part of the rollout.

A further key component of the implementation of the system is the marketing of the system to the general public and to practitioners in government and in NGO’s / agencies. A major shortcoming of the Malaysian “MyKad” system is the fact that the public are not aware of the benefits of the system and certain key practitioners are not making use of the system to its full. It is therefore imperative that an extensive public awareness and consultation campaign with the general public and all relevant practitioners takes place.

Prior to, during and after the implementation of the model, surveys and consultations must be conducted with a representative cross section of the relevant agencies and government employees in the Province to identify shortcomings in the implementation process and to provide management with information from which decisions can be made. The general
public should also be included in the consultation process to see whether the system has had a major impact on their lives or not.

Due to budgetary constraints within the ECPG it is further recommended that a process be initiated whereby the concept of the system is presented to foreign donors in order to solicit funding for its development, implementation, rollout and maintenance.

All children in the province should be included in the system but it is recommended that it is implemented in a phased in manner, targeting those children currently receiving services; similar to the Western Cape system discussed in Chapter 1 and Chapter 2. Data regarding interactions with the state prior to the implementation of the system should be obtained from all government bodies and agencies that have it available. A consultation process will be required to ensure that all of the relevant data from those systems is included.

The issues outside of the terms of reference of this dissertation need to be addressed to ensure that all aspects have been catered for correctly.

4.5. Cost Implications

The costing of the hardware, software and design of the system are not within the scope of this dissertation.

4.6. Future Issues

Several key issues lie outside of the scope of this dissertation but need to be attended to before implementation can begin:

1) Privacy rights of children vs the need for a centralized service (for more information from a United Kingdom perspective visit www.leavethemkidsalone.com and the Information Commissioners 2006 Child Databases Report);

2) Cost implications need to be finalized
   a. Costing of hardware requirements
   b. Costing of software requirements
   c. Costing of rollout of equipment
   d. Costing of training staff
e. Costing of annual support, maintenance and enhancement of the system

3) Security on the system. Securing the system that by its very nature needs to be readily accessible by professionals in this field throughout the province is fairly challenging as it could place large numbers of children in danger if, for example, it is accessed by a pedophile.

4.7. Conclusion

This chapter provided an introduction to the scope and purpose of a vulnerable children’s identity verification system in the Eastern Cape. It has further provided an overview of the technical requirements of such a system together with an implementation plan. Key issues outside the scope of the dissertation have been noted for investigation before the development and implementation of such a system can commence.
Chapter 5: Conclusion

5.1. Overview of dissertation

The provision of basic social services to children is a key ingredient in ensuring the success of poverty eradication initiatives. Children truly are the future of a nation and the approach taken to protect and develop children will influence the development of a nation and its success or failure in the global economy.

Firstly, an introduction to the subject matter was provided followed by an overview of child related policy and systems within South Africa. Thereafter an overview of noteworthy initiatives in the United Kingdom, Malaysia and other notable international role-players was provided. With both the South African and International theoretical background in place a proposal for an Eastern Cape specific system was developed as a pilot for future expansion to the whole of South Africa.

Chapter 1 provides a background to the needs of vulnerable children in the developing world. The aim of the dissertation – to propose the development of a system that makes use of a unique biometric indicator to trace the interaction of vulnerable children with the state in the Eastern Cape, together with a motivation for such a system is discussed. A motivation for the development of such a system in South Africa is given, while the scope, limitations and research methodology used is presented. Chapter 1 concludes with a high level overview of the dissertation.

Chapter 2 provides an overview of the SA planning and policy development process. It shows that a number of international policy initiatives namely the United Nations (UN) Millennium Development Goals and the UN and African Charters on the Rights of the Child, influence the direction of centralized South African policy initiatives. Centralised developmental policies are incorporated into the policy development process within national government departments and within the provinces. The Eastern Cape Provincial Growth and Development Plan is the key growth and development policy for the Eastern Cape Province. All Eastern Cape government departments need to clearly indicate how their strategies and policies contribute toward the achievement of the PGDP while
simultaneously aligning with the strategies and policies of the relevant national government departments.

Key child related policy and strategic developments within national government and provincial government departments is presented in order to identify the information needs of government regarding children and to identify the key child focused role-players within government.

Noteworthy identity verification initiatives within the United Kingdom and Malaysia and their relevance to the South African environment are discussed in Chapter 3. Lessons learnt from other international endeavors are noted while the methods of biometric identification verification available are analyzed for applicability to the South African context.

The United Kingdom Child Index, a system designed to support information sharing initiatives between child practitioners from all arms of the state and voluntary organizations, is currently still in the development state (implementation is set for end 2008) with a number of pilot initiatives indicating that serious consideration needs to be given to both technical and information management aspects of the system. Strengths of the proposed system include its focus on capturing and sharing only essential information – contact details of practitioners who have worked with the specific child (it is not meant to act as a case management system) and the ability for these practitioners to place a flag alongside their contact details to indicate that they have critical information to share about the child with other practitioners.

The Malaysian “MyKad” population identification register has successfully been rolled out and has enabled the sharing of key information between various government entities of citizens over 12 years of age. The benefits of the system include ready access to key information regarding individuals information sharing initiatives have been. The child focused “MyKid” system (children under 12) accesses such limited information about the child that its present use only adds limited value to child care practitioners in the country.

The need for a standardized approach to child focused identity verification models in Europe is discussed along with certain recommendations emanating from a European
Union Commission. Of the plethora of biometric identification verification models available, the use of a fingerprint based system that relies on GPRS for connectivity to a centralized database was shown to be the most suited to the South African environment.

Chapter 4 provides a proposal for the implementation of a biometric identity verification model in the Eastern Cape Province of South Africa. This initiative, if successful, will act as a pilot study toward the rollout of the model in the whole country. The need to clearly define the scope of the system and the relevant role-players, together with best practices that make up the core of the system are discussed. Further to this, the technological requirements for such a system together with a high level implementation plan are presented.

5.2. Future Research

Fanicchi (2001) in his dissertation “Towards a Model for the Implementation of Electronic Government (e-Gov) in Developing Countries” provides guidance regarding empirical research requirements relating to the development and implementation of government systems in developing countries.

As a continuation of this research, empirical data should be collected to determine the specific requirements of both child practitioners and children and their parents, what they consider acceptable levels of performance and the priority they attached to this type of initiative. It is important that an understanding of the proposed and potential users of the system is undertaken. This comprehensive user study will provide a background of users and will ensure that the needs of all users are considered in the scoping and development of the system and will ensure that the focus of the system remains true. A system should enable and empower users to perform their functions while simultaneously upholding the standards and principles for which it was created.

Also the current level of information sharing and integration of systems within the relevant government departments within the Eastern Cape should be determined.
Further to the above, there is a need for a detailed review of the numerous types of biometric interfaces available in the marketplace. This study should consider the numerous challenges of system implementation in the Eastern Cape and should investigate the use of GPRS and other connectivity options for the interface devices.

Subsequent to the implementation of such a system in the Eastern Cape, surveys should be performed both with government officials, representatives from the private sector and both parents and children and at government offices, to measure the improvements in the effectiveness and efficiency of services being delivered.

Chapter 4 further provides a number of issues outside of the scope of the research. These include privacy rights of children and their parents, Cost implications of such a system and the challenges surrounding securing the information on such a critical system. These areas need to be researched in depth to avoid unnecessary legislative or budgetary constraints to the full implementation of the system.

5.3. Conclusion
The next step in this research project would be to follow the proposed implementation steps as proposed in Chapter 4. Follow-up research must be conducted to ensure the successful implementation of this proposal.
References


