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HEITECH PADU BERHAD

Ministry of Internal Administration (Department of Registration of Persons)
DEVELOP, SUPPLY, INSTALL, IMPLEMENT AND MAINTAIN THE REQUESTED SOFTWARE, HARDWARE, AND
COMMUNICATION INFRASTRUCTURE FOR   e-NATIONAL IDENTITY CARD PROJECT
eNIC/NCB/001

SECTION 11	**ORIGINAL TENDER**	**11**

HEITECH PADU BERHAD

Ministry of Internal Administration (Department of Registration of Persons)
DEVELOP, SUPPLY, INSTALL, IMPLEMENT AND MAINTAIN THE REQUESTED SOFTWARE, HARDWARE, AND
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eNIC/NCB/001

Proprietary Notice

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This proposal is also confidential information and contains proprietary information belonging to this HeiTech Padu Berhad . This confidential information is to be used by the recipient only for the purpose for which it is supplied, which is solely to enable the recipient to evaluate if it should accept the technical solution proposed by the Company

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HEITECH PADU BERHAD

Ministry of Internal Administration (Department of Registration of Persons)
DEVELOP, SUPPLY, INSTALL, IMPLEMENT AND MAINTAIN THE REQUESTED SOFTWARE, HARDWARE, AND
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eNIC/NCB/001

PUBLIC BANK
(6463-H)

ﺷﺒﻠﻴﺖ ﺑﻴﮑﻚ   大众银行

Issuing Bank: Public Bank Berhad
No: 340, R. A De Mel Mawatha,
Colombo 03

Beneficiary: Chairman
Cabinet Appointed Tender Board
Ministry of Internal Administration
No.51C, Sir Ernest De Silva Mawatha,
Colombo 07.

DATE: 19th June 2008

OUR GUARANTEE: D503LG08/00092

We have been informed that Hitech Padu Berhad (hereinafter called 'The
Bidder) has submitted to you its Bid dated 26th February 2008 (hereinafter called
'The Bid') for Develop, Supply, Install, Implement and maintain the requested
software, Hardware and Communication Infrastructure for Electronic National
Identity Card (E-NIC) Project under Invitation for Bids No: eNIC/NCB/001 ("IFB")

Furthermore, we understand that, according to your conditions, Bids must be supported
by a Bid Guarantee.

At the request of the Bidder, we Public Bank Berhad a bank duly registered under
the laws of the Republic of Sri Lanka and having its registered office at No.340,
R.A de Mel Mawatha, Colombo 03 in the said Republic hereby Irrevocably
undertake to pay you any sum or sums not exceeding in total an amount of
LKR.20,000,000.00 (Sri Lanka Rupees Twenty million Only)upon receipt by us of your
first demand in writing accompanied by a written statement stating that the Bidder is in
breach of its obligation(s) under the Bid Conditions, because the Bidder:

(A)   Has withdrawn its Bid during the period of Bid validity specified; or

(B)   Does not accept the correction of errors in accordance with the
instructions the bidder (hereinafter "The ITB") ;or

(C)   Having been notified of the acceptance of its Bid by the purchaser during
the period of Bid validity

(I)   Fails or refuses to execute the contract form, if required,or

(II)   fails or refuses to furnish the Performance Security , in accordance
with the ITB

This Guarantee shall expire;

(A)   If the Bidder is the successful Bidder, upon our receipt of copies of the contract signed by the Bidder and the Performance Security issued to you by the Bidder; or

(B)   if the Bidder is not the successful Bidder, upon the earlier of

(I)   our receipt of a copy of your notification to the Bidder that the Bidder was unsuccessful, otherwise it will remain in force upto 15th November 2008

Consequently any demand for payment under this Guarantee must be received by us at the office on or before that date.

Payments made in respect of demands made under this guarantee shall pro-tanto discharge our liability.

This guarantee should be returned to us not later than one month after the expiry date of the guarantee. Irrespective of its return our liability under this guarantee cease on its expiry as stated above or any extensions granted thereto.

Any dispute arising hereunder shall be dealt with according to the laws of the Republic of Sri Lanka.

Signed on this 19th June 2008

for PUBLIC BANK
COLOMBO BRANCH

Country Head

K AJITH ROSHAN MARIUS DIAS 1-4003

Authorised Signatory

Authorised Signatory

Section 1: Executive Summary

Section 1: Executive Summary

1.1   Background

Department of Registration of Person (RPD) is the authorized government institute for registration of persons in Sri Lanka. The department is mandated by the Act No 32 of 1968 to do so. This department was started since 1971 and has registered over 20 million persons and issued citizen ID cards for that population.   The National ID card (NIC) is regarded as the key identification document by all sections of Sri Lanka for identification and authentication of person.

At present, RPD provides the following services:

   i.   Registration of citizens of Sri Lanka as per Registration of Persons Act Sri Lanka.

   ii.   Issuing of new National Identity Cards.

   iii.   Issuing of duplicates for lost identity cards.

   iv.   Making amendments in the identity cards.

   v.   Mobile services to issue new identity cards.

   vi.   Verification of information in NIC.

As a regulator and authorized government agency managing this NIC services, RPD needs to automate, improve and secure the processes leading to the issuance and management of the NIC by leveraging in ICT as the enabler for a more improved, efficient and secured NIC management. The challenges faced by the department demands for a better-managed system. Some of these challenges are:

   §   High level of manual processes resulted in duplicate, lost or damage data

   §   There have been numerous instances where the existing NIC has been forged and hence the credibility of the existing NIC as an authentic identity document has been compromised to a great extend

   §   Efficiency of the department in providing its services to the citizen is being demanded by the citizens

In order to address these issues and challenges, the RPD wishes to automate their activities and to be able to issue a more secure and reliable NIC.

With this in mind, HeiTech Padu Berhad (HeiTech) is pleased to submit its comprehensive proposal for this initiative as per the requirements set by RPD. With our experience of implementing the same for the National Registration Department of Malaysia and also at the North Sulawesi province in the Republic of Indonesia, we are confident of fulfilling the objective of RPD.

1.2 Objective of e-NIC Project

RPD would like to adopt the latest state-of-the-art computer driven information system to make the internal processes in the department more efficient, citizen centric and suitable for automated processing. As a result, certain existing processes in the department are to be changed and certain new core processes are to be introduced with the implementation of the e-NIC project. In order to achieve the overall objectives of the RPD, the following need to be done through the course of the e-NIC project:

§ To provide a secured NIC for the citizens of Sri Lanka that follow international standard, adopting a high-level security features that will make it difficult to forge.

§ To build an application system to automate the current and new processes with enhanced security and audit trail to enable accountability.

§ To build a new and secured data centre.

§ To create an efficient, reliable, and friendly service to the citizen

§ To have an accurate, secured and tamper proofed information printed on the NIC

§ To provide an efficient system for fast verification and authentication of persons

§ To issue a unique id for all citizen

§   To build a consolidated population database for every citizen of Sri Lanka that is eligible for the NIC

§   To enable information sharing with other government institutions

§   To enable interoperatability with other system namely ePopulation and eDS.

1.3   Proposed Solution

Based on the IFB tender requirement, RPD requires the following as the solution to realize the e-NIC project:

§   Integrated solution framework that includes the user identification, access control, authentication, and common look and feel.

§   Allowable web services integration to ePopulation, eDS and future system.

§   Centralization of data into a single database platform

§   High availability with 99.95%, 24x7 up time

§   High scalability for future expansion, high and robust performances with failover services

§   High security features including password management, role base security, auditing, data encryption and data access according to users authorization level.

§   Highest manageability for continuous service availability, ad-hoc server reporting, event-based alert, ease of system manageability including automatic recovery, performance monitoring, failover recovery, capacity planning, historical trend analysis and event management.

1.4   Why Our Solution

The ultimate question that the RPD will be asking in evaluating the Tender responses from various bidders is "What differentiates a particular solution from the others?"

Overall, HeiTech believes that we are proposing proven and field-tested solutions with a high level of scalability. Moreover, integration between various systems is greatly simplified as the applications utilize standard J2EE architecture framework and DB2 as the main backend database. The choice of J2EE and DB2 technology is in line with the National Enterprise Architecture (NEA).

We offer a solution that provides a powerful yet affordable computing environment optimized for simplicity and productivity. The solution for e-NIC System will be able to drive the Total Cost of Ownership of the Information Technology (IT) down and play its part in improving the RPD cost/income ratio.

The solution environment is to be modular, flexible and able to keep pace with the fast changing business environment. It's also scalable to support the growth of the organization functional and business needs, manageable environment and able to keep pace with the ever-increasing demand of a more efficient user community.

In addition, our solution provides a full fit for the requirements of the RPD. This is detailed in the "BIDDING FORMS – REQUIREMENTS" Section 3 in this document.

Any solution being proposed is only as good as the team implementing, deploying and supporting the solution. The HeiTech team has extensive experience in deploying solid and reliable IT systems in their respective technical areas such as Implementing the Malaysia National Population system, experience in various RDBMS, workflow, electronic document management system, servers and infrastructure.   In addition HeiTech bring strong Project Management, System Integrations and Change Management skills to project. HeiTech are also aware of the impending risks involve in projects of this sized and complexity and the committed actions to be taken to mitigate the risks.

As the turnkey project involves people adaptation to the new systems and processes, HeiTech are also committed to coach, train and guide RPD user along this journey with the ultimate goal that the RPD users or local resources will take complete ownership of the systems and thus ensure the project success and sustainability. A careful plan for Transfer of Technology (TOT) has been developed to ensure smooth transition on the system usability and support.

HeiTech believe that our architecture and experience implementing similar system will meet all RPD requirements, objective and benefits to Government of Sri Lankan as well as its citizens.

1.5 Project Approach

Considering the magnitude and scope of work, HeiTech has put together a team through a Consortium that has the strength and expertise in various fields to successfully deliver on the project. HeiTech has successfully partnered with numerous companies and has long standing track records for executing projects of similar nature.

HeiTech is the bidder and will be the prime contractor (partner in charge), whilst **Epic Lanka (Pvt) Ltd** is the local partner which will undertake the responsibility as the local service and technical support provider, local representative, application development and system integration partner.

It is acknowledged that Epic Lanka being a local Sri Lankan IT company, will take care for front-end and liaison, coordination with RPD and as the local contact for RPD that will support HeiTech for implementation and maintenance of the systems.

Another consortium member is **OpSec Security Inc.** from the USA, which will be our technology provider and to undertake the responsibility for establishing and operating card production & personalization facility in Colombo for the production of e-NIC Cards.

The respective responsibilities are:

Consortium Members	Responsibility
HEITECH PADU BERHAD – a public listed Malaysian company, listed on the main board of the Malaysian Stock Exchange (Prime Contractor – partner in charge)	§ Overall Project Management § ICT Consultancy Services § System Integration (SI) services. § Study, design, develop, testing and commission of the e-NIC System § Pilot implementations § Post Implementation Support: 2nd Level Support § Technology transfer § Provisioning and commissioning of data centre facilities, RPD HO and Divisional Secretariat offices.
EPIC LANKA (Pvt) LTD	§ Development of e-NIC software § Supply, deliver, installation and commission of Hardware, Software Network, Cabling and Accessories. § Nationwide implementation and implementation support. § Operation and monitoring activities § Mobile Units implementation. § Training and support § Post Implementation Support: 1st Level Support § Network Management Services and Support § Data centre, RPD HO and DS offices renovation.
OPSEC SECURITY INC.	§ Card printing and personalization § Card production operation and management.

HeiTech and Epic Lanka have been working together since 2001. Together we secured a contract from the Department of Immigration and Emigration of Sri Lanka to supply 2,000,000 passports and developed a Travel Document Printing System (TDPS) in 2003. The department then awarded the Remote Branches project where we linked DIE offices in Matara, Kandy and Anuradapura to the head office in Colombo. These successful projects lead us to the construction of the Disaster Recovery Facility (DRF) – first of its kind in Sri Lanka which makes DIE the most modern computerized department in the country. We are now trusted to deliver another 3,000,000 new 'N' Series passports until the year 2012.

HeiTech's presence and future in Sri Lanka is for a long time. We have allocated a sizeable fund as an investment to be in Sri Lanka for a long term. The support from the Malaysian Government for Malaysian companies investing in Sri Lanka is visible through the increasing number of investment made here, thus giving us the trust on that mission of ours. Following the good relationship with Epic Lanka and continuous support from the Government of Sri Lanka and other potential customers, we formed a Joint Venture (JV) company. In 2007 **InTech Solutions (Pvt) Ltd** was formally incorporated under the Board of Investment (BOI) purview, to focus on businesses in Sri Lanka, particularly to provide solutions to the government sector as well as the private sector. With HeiTech's experience and expertise, combined with Epic Lanka's strong local presence, InTech is ambitious to be a leading ICT company in Sri Lanka. We want to be part of the nation's ICT building and growth.

1.6   Implementation Timeline

To fulfill RPD's requirements, the estimated duration for the entire project is 8 months for application development, 6 months implementation inclusive of 3 years warranty plus 4 years maintenance. To achieve the above-proposed solution, we

have identified and prioritized our key deliverables and activities. The high-level project implementation activities are further illustrated in the Gantt chart. Please refer to the Section 5 for more details on the project timeline.

A project of this size will require strong project management, planning and effective knowledge transfer and training. HeiTech will bring its proven project management and planning methodologies to the e-NIC project. Quality Assurance checkpoints will be implemented to ensure that the deliverables are up to our stringent standards and meet RPD expectations. As part of the project management, the following documents will be provided to RPD during project execution:

- § Project Plans and schedules
- § Minutes of project related meetings
- § Project Progress Reports
- § Monthly Reports

1.7   Critical Success Factor

As part of our implementation methodology, HeiTech has identified a number of factors that will impact on the success of the project. HeiTech are fully aware of the importance of these factors and have successfully dealt with them in numerous assignments before.

To recap, HeiTech believe that the critical success factors for the e-NIC project are:

- § Cooperation between HeiTech, RPD and other project stakeholders
- § Pool of readily available expertise in systems development and implementation of the e-NIC system

- § Project experience and past success in Sri Lanka
- § Experience and Capabilities of the consultants and team members, having the right skilled resources
- § Strong and proven Project Management Capabilities and Implementation Methodologies
- § Effective Knowledge Transfer to RPD Employees
- § Successful and proven Change Management practices
- § Active and committed Participation from RPD Team Members
- § Adherence to project scope, time and quality
- § Strong support from RPD management

1.8 HeiTech Padu Capabilities

HeiTech has been ranked among the **top five players** in the Malaysian ICT services market in terms of market share, alongside IBM, Accenture and Computer System Advisors. HeiTech is also among the top five ICT players with a complete suite and breadth of services.

HeiTech is a one **stop fully integrated ICT services company** listed on the Main Board of the Malaysian Stock Exchange (formerly known as Kuala Lumpur Stock Exchange).

HeiTech offers users both in Malaysia and abroad a high-quality, cost-effective services and solutions. HeiTech have **proven applications expertise** in security document issuance and personalization such as the National ID, Border Management System and the Immigration System.

HeiTech comprehensive product and services offering is as follow:

- § ICT Consultancy
- § Application Development (end to end , mobile, packaged)
- § Manage Data Centre Service and Disaster recovery
- § Manage Network and Communication Service

- § Security and ICT Services

§   ICT Project Management

§   Enterprise Application Integration

§   Package solution and integration

§   Change Management and Business Process Reengineering

§   Application Maintenance and Technical Support

§   Help desk or Customer Call Centre

1.8.1 Domestic Preference

More than 40 percent of the application development for the e-NIC System will be done by Epic Lanka and most of the infrastructure works will be conducted by reputable Sri Lankan companies. We are determined to execute the transfer of technology program in ensuring the knowledge is shared across to the people of Sri Lanka.

1.8.2 Why HeiTech Padu

The valued proposition that the HeiTech consortium bring to this project includes:

§   A Global company with offices in Malaysia and having presence in Indonesia and Sri Lanka

§   Consulting and Business Integration Expertise - HeiTech brings valuable expertise in system implementation especially systems development for various platform, project management, service delivery, process design, user requirement specification, and organisation and human performance management in complex and mission critical business environments.

§   HeiTech has industry expert with comprehensive domain understanding in executing Government turnkey projects. This has been made possible through our wide experience in having executed similar projects worldwide.

§   HeiTech possesses a large reservoir of strong technical manpower trained on latest technologies. This assures our clients that they get the latest and best solutions in latest technologies.

§   HeiTech has a large base of skilled resources spread across the world that has been involved in many sensitive projects with the

various Government. We are fully aware on the security requirement and the sensitivity of the Government documents and data. This assures our customers the benefit of a reliable and dependable partner.

§ We are ISO 9001:2000 certified with CMMI Level 3 Compliance. We will adopt a quality processes with commitment to delivering quality solutions, cost effective and highly scalable solution.

§ Partnering with Epic Lanka, and having base in Sri Lanka will allow us to provide continuous on-going local support and offering a wide range of classroom sessions and field trainings to fully train and equip the user groups with the usage of the application software and its maintenance.

1.8.3 Our References

The references of HeiTech and its consortium members should provide the necessary assurance to RPD as to the capacity of each member to fulfill their obligations on the project. Proven track record with evident support and reference from our past and existing customers further justified our capability to deliver the eNIC project for RPD. These testimonials speaks for itself and is provided in this submission.

1.8.4 List of Our Major Customers and Project Experience

HeiTech Padu Clients

	Project Name	Date Awarded	Date Completed	Value
1.	Modernization and computerization of Malaysian Immigration Department	22nd November 1995	November 2000	RM 329 million (USD87 Million)
2.	Modernization and computerization of the Malaysian National Registration Department through the development and implementation of Information System & National Record and Agency Link Up System	13th December 1996	June 2000	RM 204 million (USD54 Million)
3.	Modernization and computerization of Malaysian Road Transport Department	20th January 1992	Jan 1997	RM 127.3 million (USD33.5 Million)
4.	Automated Fingerprint Identification Central System Upgrade of the Malaysian National Registration	1st April 2001	30th November 2001	RM 17.7 million (USD4.7

	Project Name	Date Awarded	Date Completed	Value
	Department			Million)
5.	Travel Document Printing System for Sri Lanka Department of Immigration and Emigration	31st January 2003	30th January 2008	RM 16.1 million (USD4.2 Million)
6.	Malaysian National Registration Department Agency Link UP System maintenance	1st January 2002	31st December 2004	RM 4.4 million (USD1.16 Million)
7.	Malaysian National Registration Department Information System and National Record maintenance	1st July 2000	30th June 2002	RM 62 million (USD16.3 Million)
8.	Enhancement contract for the Malaysian Immigration Department	13th November 2002	12th November 2003	RM 10.8 million (USD2.84 Million)
9.	Malaysian Immigration Department Travel Document System maintenance	15th march 2003	14th September 2003	RM 11.4 million (USD3 Million)

1.8.5 Our success story as prime contractor

AGENSI	BUSINESS TRANSACTION	BEFORE	AFTER
JPN — JABATAN PENDAFTARAN NEGARA	Identity Card Issuance	6 Months	2 Weeks
	Photo Image	Conventional	2 Weeks
	Birth, Adoption, Death, Marriage & Divorce	Manual Registration & Data Retrieval	Online Registration & Data Retrieval
JABATAN PENGANGKUTAN JALAN	Driving License Renewal	20 Minutes	5 Minutes
	Road Tax Renewal	20 Minutes	5 Minutes
	Vehicle Registration	1 - 3 Days	30 - 60 Minutes
JABATAN IMIGRESEN NEGARA	Passport Issuance	2 Weeks	3 Days
	Information Extraction	Physical Files	Online Information

1.9   Conclusion

HTP believe that we have assembled a team of seasoned professionals that have the necessary skill with relevant experience and maturity in the key areas to successfully implement the eNIC project. We are committed and thus are confident that we will deliver the project within time and budget. Our proposal is based on proven technology and implementation that will reduce the project risk.

Section 2: Requirement Understanding

Section 2: Requirement Understanding

2.1 Overview

This section will summarize our understanding of RPD requirements in develop, supply, install, implement, and maintain the e-NIC project. The understanding is collectively taken from e-NIC Project IFB documents, GPR, SRS documentations, clarification documents, and site visit to RPD Head Office and Dehiwala Divisional Secretariat. The details requirements will be capture and enhance during the project implementation to meet long term objective and vision of the RPD as stated.

Vision of the Department

To ensure all eligible citizens of Sri Lanka are registered and issued with a secure ID Card with minimum inconvenience to the public and to ensure the identity of a registered individual is verified in a fast & convenient manner.

Mission of the Department

Confirmation by a process of registration the identity of legal residents of Sri Lanka.

Objective of the Department

§   To ensure that the department is fully aware of those citizens (residing in the country) who have not registered.

§   Ensure RPD offers a convenient & courteous service to all citizens obtaining our services.

§   To ensure that there is a secure method to register the citizens and issue ID Cards.

§   To ensure the information maintained of the individual is current.

§   To offer fast service for those who require clarifications regarding the identity of any individual.

§   To maintain all records/information of individuals in a confidential and secure manner.

§   To maintain a single number for each individual from birth to death.

§   One single number to be used during the lifespan of the individual.

2.2 Department of Registration of Persons

Department of Registration of Person (RPD) located at Colombo Sri Lanka is the authorize government institute for registration of persons in Sri Lanka. It's already registered over 20 million persons and issued citizen ID cards or National Identity Card (NIC) for that population. The National ID card is regarded as the key identification document by all sections of Sri Lanka for identification and authentication of persons.

At present, Department of Registration of Persons provides the following services:

§   Registration of citizens of Sri Lanka as per the Registration of Persons Act Sri Lanka

§   Issuing of new NIC

§   Issuing of duplicates for lost identity cards

§   Making amendments in the identity cards

§   Mobile services to issue new identity cards

§   Verification of information in NIC

The Department is currently organized around a combination of different types of applications and functional activities at various location, units and mobile to provide service above. All these application will go trough various process from submission, certifying, numbering, indexing, belt, approval, laminating processing and cards distribution.

According to the current regulations, once a person reaches the age of 16, that person is eligible to receive a NIC. At present, National Identity Card applications are distributed through Grama Niladharis (GN) at village level and the application details are sent to Department of Registration of Persons through the respective Divisional Secretariats (DS). Hence the functions of the

department have been decentralized to the Divisional Secretariats and Grama Niladari level. The department verifies the applications received from the Divisional Secretariats and issues the ID cards. ID cards are distributed to the citizens through the Divisional Secretariats or the Grama Niladaris. In addition, the department has a 'one day' service where citizens are able to obtain an ID card within a few hours if they visit the department. A total of 4000 cards daily currently being produce using this type of service.

There have been numerous instances where the existing NIC has been forged and hence the credibility of the existing NIC as an authentic identity document has been compromised to a great extent. Furthermore, at present, it is difficult to obtain a NIC within a short period of time, except through the 'one day service' offered at the Department of Registration of Persons. In order to address these issues, Department of Registration of Persons wishes to automate their activities and also issue a more secure and reliable National Identity Card.

2.3 Scope of Works

The e-NIC Project is a large turnkey project that involves diverse components from Application Software, Hardware, Networking, RDBMS, System Software and various tools to support and enhance the existing process. The objective of this project is to newly develop the ICT at RPD as mentioned in Section V Schedule of Requirement of the IFB document.

The project comprises of six main components / activities as mentioned below:

    i.   The e-NIC System Software: A custom built software and integration required to enable RPD business operation operate successful.

    ii.   Provisioning of new data centre facilities for RPD head office that include all active and passive hardware components and standard software installed. Its include servers, online and offline storage devices, communication and security equipment and related cabling, power supply, power conditioning equipment and air

conditioning equipment and relevant power cabling, relevant firmware, RDBMS, UPS, operating systems, system software and civil works.

iii.   Provisioning of hardware and standard software and communication services for RPD Head Office and Divisional Secretariat offices for handling distributed RPD activities. The items are computers, system software, printers, barcode, image capturing devices, furniture for DS offices, communication equipment, cabling, power supply, UPS, power conditioning equipment, and civil works.

iv.   Provisioning of one unit Type A and two units Type B vehicle mobile office units to further support the data collection for replacement of existing ID cards and acceptance of new card applications.   The mobile unit will be equips with required equipment to enable and support data collection above.

v.   To provide services and managing of printing and personalization of new Identity Cards once from the point of fetching a XML data format containing the ID card details to the handing over of personalized ID cards back to the RPD together with relevant reports and status.

vi.   Wide Area communication services form all DS to RPD Head Office. These services should be provided on a rental basis with ownership and maintenance of all equipment involved remaining with the service provider. Wide area communication services are required only for locations where such service is not available through Lanka Government network (LGN).

2.4 Out of Scope

§   Supplying a consumable and forms being used for this system.

§   Managing current physical document at DS and HO.

§   Provide data entry services.

§   No application submission at HO, counter service not provided.

§ Our scope is upgrading the bandwidth at existing DS already connected using LGN but not maintaining the LGN network.

§ Integration to LGN network can be done upon LGN approval (via point to point)

§ Card distribution from HO to DS

§ Disaster recovery facilities

§ Implementing Email server, DRF , IVR, SMS solution, and VoIP system.

2.5 Business Requirements

A preliminary Government Process Re-Engineering (GPR) study was carried out in the department to make the internal processes in the department more efficient, citizen centric and suitable for automated processing. As a result, certain existing processes in the department are to be changed and certain new core processes are to be introduced with the implementation of the e-NIC project.

Following are the expected benefits of the e-NIC System.

Benefits to RPD

§ The e-NIC System would improve the efficiency and effectiveness of ID card issuing system.

§ The security loop holes of the existing issuing process will be minimized.

§ E-NIC system would establish an efficient card information verification mechanism which would provide card information to subscribed organizations through a number of channels.

§ The environment of Department of Registration of Persons would be changed in a positive manner.

Benefits to Citizens

§ Citizens would be provided with ID cards in a more convenient manner.

§ The time taken to issue NIC will be considerably reduced.

§ Citizens would be provided with facilities at Divisional Secretariats to capture photographs, thumb impressions etc. making it more convenient for citizen.

§ Citizens would be able to track the status of their applications submitted without visiting the Grama Niladhari, Divisional Secretariat or the Department of Registration of Persons.

§ NIC would contain information in all three languages making it easy for citizens to prove their identity in a given situation.

Government and Private Organizations

§ The government and private organizations would be able to verify the authenticity of cards by checking the convert and overt security features of the card.

§ RPD would allow government and private organization to subscribe to the card information verification process. The subscribed parties would be able to verify the card information through multiple channels for an agreed fee.

§ Since the information of the card would be kept up to date, government and private organizations would rely on the information containing in NIC

In addition, following policy level decisions have been taken as a result of the reengineering exercise:

§ Decentralize certain activities such as registration of applications, localized distribution of cards and handling of related enquiries to Divisional Secretariat (DS) Level.

§ Special RPD Units to be set-up at Divisional Secretariats.

§   Applications will not be controlled nor serially numbered. This facilitates wider distribution of blank application forms. The control and numbering takes place only after handing over the application to the Divisional Secretariat.

§   The facial picture & thumb impression of the applicant will be taken on-line.

§   Information in the card to be printed in 3 languages - Sinhala, Tamil and English.

§   A card to be valid for 10 years.

§   Age of eligibility to be reduced to 15 years.

§   On-line verification information to be provided to identified organizations (e.g., Elections Department, Immigration Department, Police, etc.).

§   The new identity card number to be in the format proposed in the 'LIFe' ('Lanka Interoperability Framework') document.

§   Necessary changes to the relevant legislature to be introduced in line with the changes proposed above.

2.6 Technical Requirements

§   Application should be base on loosely coupled which separate front end, business logic, communication and database.

§   All client interface should be web-based and compatible with industry standard web browsers.

§   All centralise applications are fully redundant and fault tolerant with automatic fail-over.

§   Use of open standard and follow SOA design.

§   Compliance with National Enterprise Architecture (NEA), ICT Policy for the Government and LIFe data formats from ICTA Sri Lanka standard and guideline.

§   The e-NIC application should handle process A, B, C, D describe.

§   Minimum performance standard as specify in the IFB document should be maintained.

§ The e-NIC System which will integrate with the eDS and ePopulations System and streamline to the adoption of the 'Lanka Interoperability Framework' (LIFe) standards. But in the case both system not available its should provide a interface ready.

§ E-NIC system should be able to run in online and offline mode.

§ Fingerprint will be capture online, one finger, rolled print according to ICAO/ISO 19794 standard.

2.7 Business Functionalities

Stated below are the summarize process identified for the GPR documents. Further discussion and refining will be done during the project to improve and enhance with approval from RPD.

The details diagram of all the required processes as define in the SRS document has been summarized and shown at **Section 9: Annexure 2.**

2.7.1 Process A : Obtaining of Applications

The process start from the point a citizen becomes eligible for registration until the point the relevant individual submits an application to an authorized representative of the department. Below are the objectives of the new core processes:

§ Applications should be available in 3 languages (Sinhala, Tamil and English).

§ Applications should be easily available to the citizens.

§ Applicants should find it convenient to fill the application.

§ The department should be aware of those eligible for registration and their contact details.

§ Place of residence (address) and photograph should be properly certified by the Authorized Certifying Officer.

§ Applicant should take responsibility for the information provided and the required information on the application should be completed at least in Sinhala/Tamil & English.

2.7.2 Process B : Application Processing and Record Management

The process start from the point a representative of the department accepts an application (new or modification of information) to the point the application is processed, the individual registered (or relevant information modified) and ID card with correct information is returned to the applicant and his information maintained in a secure manner.

§ Information stated in the application should be validated with other Systems such as the proposed ePopulation Register System – preferably on-line.

§ Applicant should be able to validate the information in the e-NIC system before registration and issue of an ID Card.

§ A single register of persons should be maintained and the information should be readily accessible.

§ Should be able to handle frequent modifications (i.e. address) as well as less frequent modifications (i.e. change of name).

§ Should ensure every application is registered and issued with an ID Card.

§ Should ensure the ID card is handed over to the applicant.

§ Should maintain the records (physical & electronic) for future reference.

§ Should ensure all information in the card and database/register are current and accurate.

2.7.3 Process D : Handling of Customer Queries

The process start from the point any citizen or institution makes a query from any authorized officer (even those to whom the commissioner's powers have been decentralized) until the time such information is made available to the individual or institution seeking the information (including on-line access to selected institutions like Elections Department, Immigration Department etc.).   This

process includes maintaining a knowledge base of type of queries that are being asked and the responses given.

§ Should handle any citizen query in Sinhala/Tamil or English.

§ Should provide automated responses such as Automated Voice Responses, SMS, Web Interfaces etc. to query application related and lost card related queries.

§ Should inform the applicant on the status of an application.

§ Should provide on-line verification to authorised persons on Registered Persons.

§ Should make the verification of information on the cards convenient to the public.

The following table summarizes the BPR core process and its relationship to the Software Requirements. **Section 9: Annexure 2** showed all the required processes as define in the SRS document.

Process Reference	Core No.	Software Requirements
PROCESS A	C1	Obtain Applications
	C1.1	Scenario 1 – All Systems On-line
	C1.2	Scenario 2 – Mobile and Off-line Modes
	C1.3	Scenario 3 – Disconnected DS Office
	C1.4	Qualify Applicants
PROCESS B	C2	Processing of Applications
	C2.1	Process First Application
	C2.2	Cards Not Acknowledged on Time
	C2.3	Investigate Delays or Non Receipt of Cards
	C2.4	Storage and Issue of Cards at DS
	C2.5	Destruction of Old Applications
	C2.6	Cards Handed Over to Certifying Officers for

		Distribution
	C2.7	Distribution of Cards
	C2.8	Processing of Change Applications (CI Applications)
	C2.9	Processing of Regular Renewal Applications
PROCESS C	C3	Handling of Lost Cards
	C3.1	Reporting of a Lost Card
	C3.2	Inform by Phone
	C3.3	Inform by Visiting the DS Office
	C3.4	Action Taken by the Lost Card Issuing Office
	C3.5	Receiving of Lost Cards at RPD Designated Offices
	C3.6	Issue of New ID Card
	C3.7	Process of Recording the Death of a Registered Person
	C3.8	Receipt of Card at Registered Office
	C3.9	Destruction of Invalid Cards
	C3.10	Alternates and Exceptions
PROCESS D	C4	Query Management
	C4.1	Queries on Applications / Renewals, Lost Cards, Complaints, or Validation of information
	C4.1.1	Received by Telephone or Personal Visit to DS or HO
	C4.1.2	Queries Received by Email / Website
	C4.1.3	Queries Received via SMS
	C4.1.4	Queries Received by IVR
	C4.2	Queries NOT related to and Application and/or Complaints
	C4.2.1	Received by Telephone or Personal Visit to DS or HO
	C4.2.2	Queries Received by Email / Website
	C4.2.3	Queries Received via SMS
	C4.2.4	Queries Received by IVR
	C4.3	Queries Related to Verification of Identity
	C4.3.1	Received by Telephone

	C4.3.2	via Personal Visit to DS or HO
	C4.3.3	On-line Verification
	C4.4	Search the Knowledgebase
	C4.5	Submit Entry to Knowledgebase (Translate to English)
	C4.6	Update Knowledgebase
	C4.7	Alternates and Exceptions
Support Functions		Administration and Maintenance of RPD Process and Workflow
		Managing Certifying Officers (CO)
		Manage Stakeholders and 3rd Parties
		Manage DS locations
		Create and maintain information related to workflow.
		Create and maintain information related to forms.
		Integration and Interface to AFIS and Card Printing
		Reporting

Section 3: Proposed Solution

Section 3: Proposed Solution

3.1   Solution Overview

Figure 3.1 below show two main components of e-NIC System which is Application Architecture and System Architecture. It's illustrates our end to end e-NIC proposed solution to achieve RPD requirements. Our **n-tiers Application Architecture** will serve of four main area; Head Office, Divisional Secretariat or Branch System, public and external agency as required. More details about these solution components will be explained in the following sub sections.
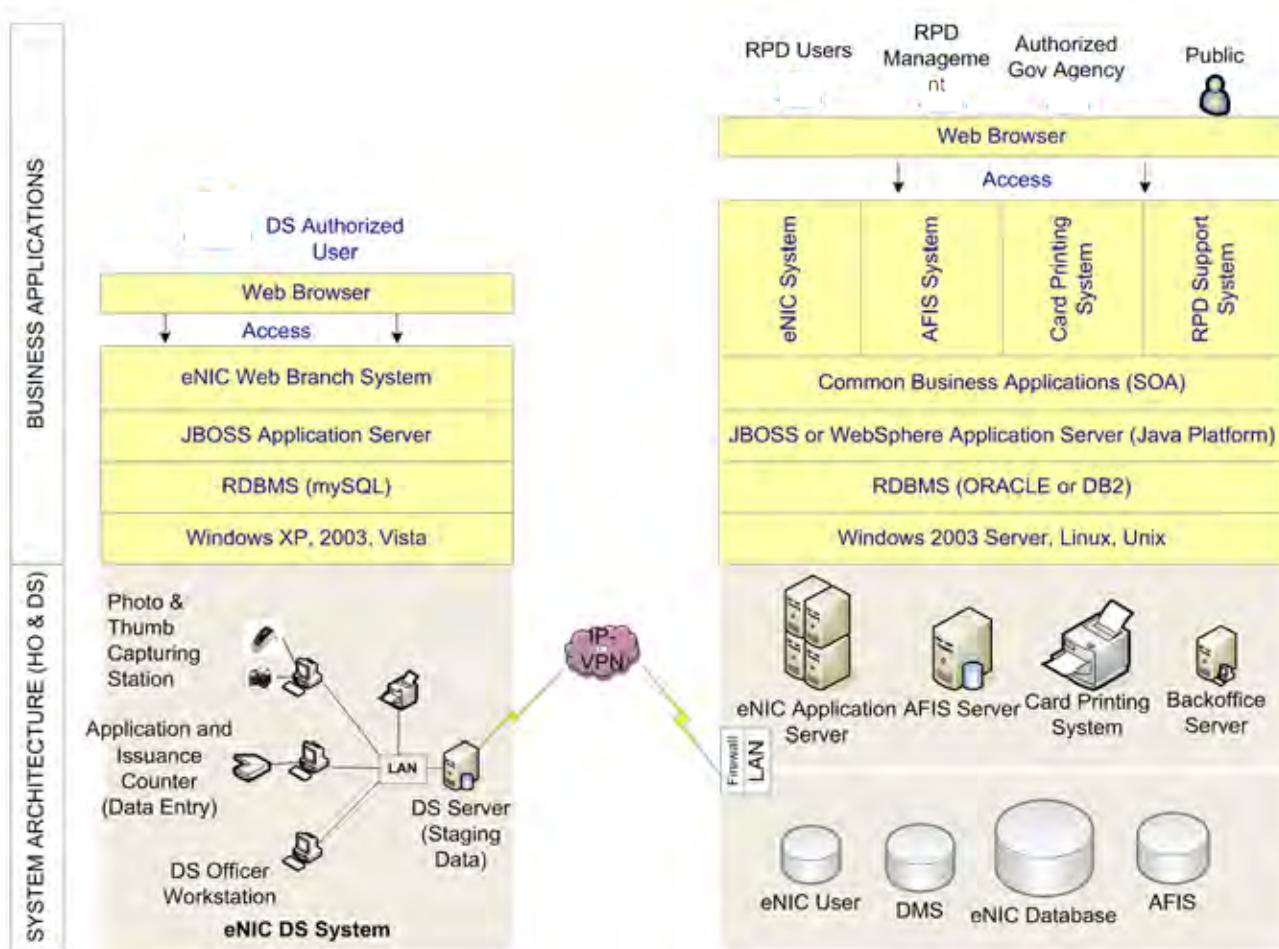
Figure 3.1 e-NIC System Overview

The e-NIC System for RPD is meant to transform the way the RPD will operate in the future. Therefore the design and selection of the solutions for the RPD requires careful and thoughtful consideration and has to take into consideration a number of factors and criteria such as:
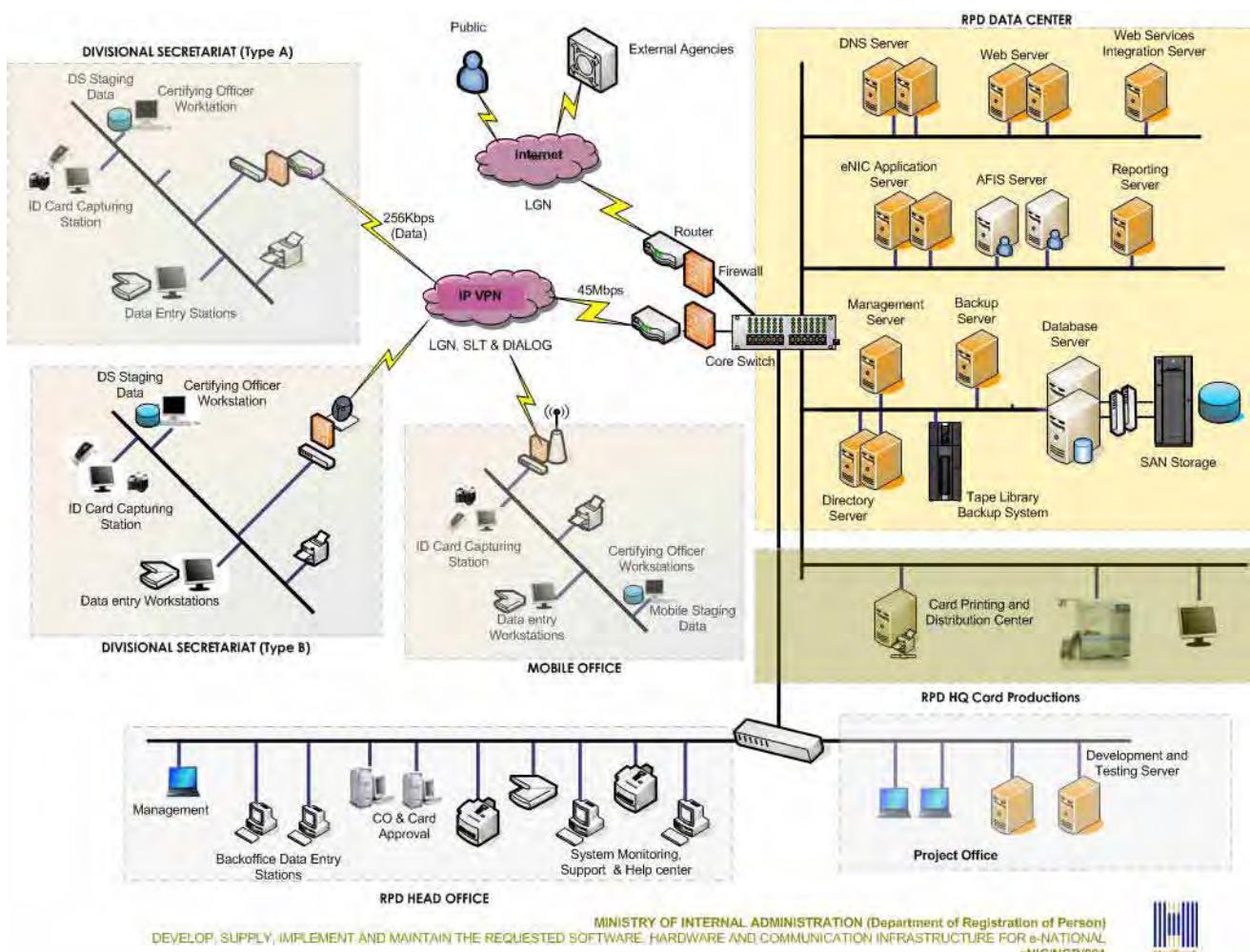
§ The solution has to be proven and field tested, safe platforms and cost effective

§ User friendly, scalable, flexible, secure and integration.

§ The RPD must be able to leverage on the solution to achieve its business objectives within the overall framework specified by Government of Sri Lanka such as LIFe – Lanka Interoperability Framework.

§ High availability of skilled resources to support the systems and ensure its sustainability

HeiTech have based their proposed solution on these criteria's and this Section will detail the various modules proposed, the platforms they run on and how they meet the specific requirements of the RPD.

3.1.1   System Architecture

Figure 3.2, show more details the system required in implementing e-NIC System. It's show the solution for Head Office System, Branch and Mobile System, and Network components. All are using integrated and common interface web business applications. The business application at branch will communicates to head office either online real-time or batch mode depending to connection status or network availability.
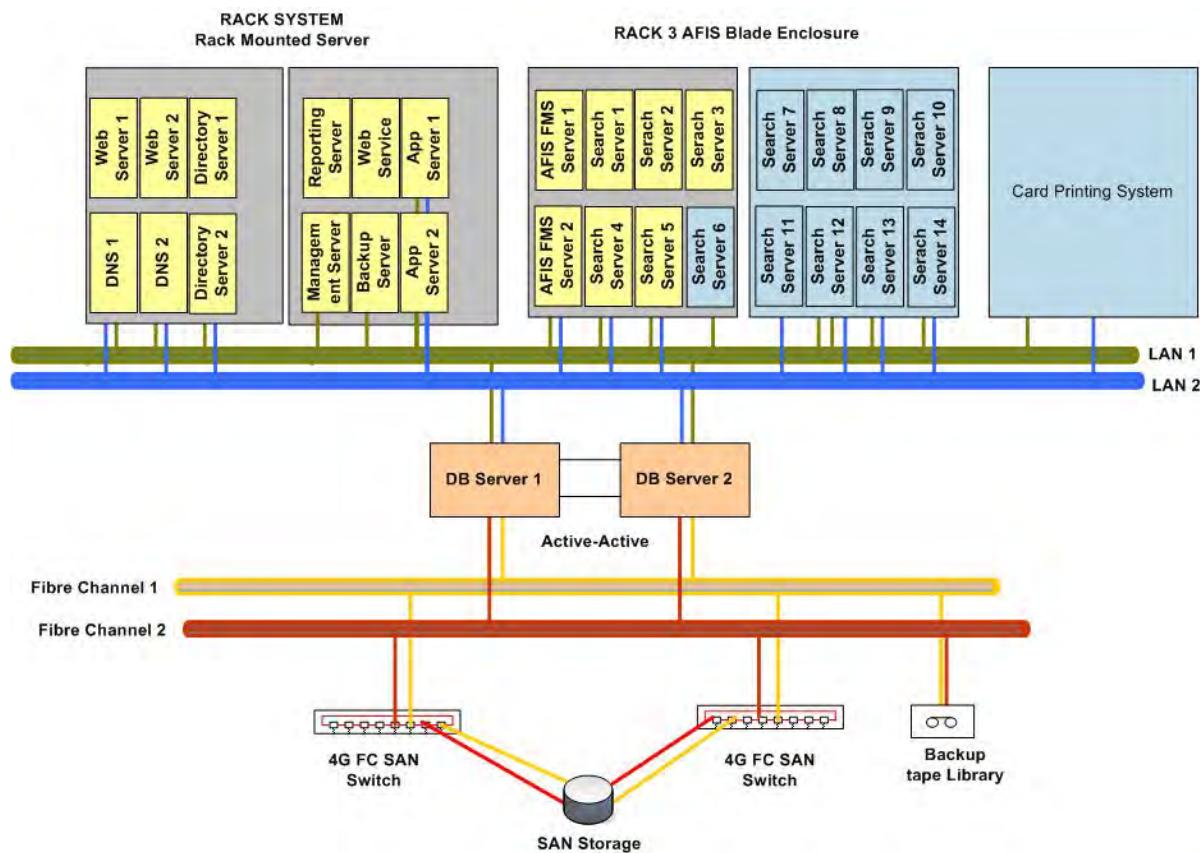
Figure 3.2 e-NIC System Configurations

Central or Head Office System

The e-NIC main system, AFIS, Card Printing System and Back-office or supporting applications will be located at the RPD Head Office within a secured and controlled environment. The system will be equipped with advance technologies, redundancies and load balance capability connected to external disk storage. The e-NIC Application Server and other servers will serve all requests coming in from the client or Branch System. It will have a direct connection to the centralize cluster Database Server and all requests will be filtered via a firewall before it is passed to the Application Server. By this way a secured connectivity from outside to the RPD Head Office can be established without sacrificing the overall system performance.

The centralize storage units using SAN technology will host artifact (supporting documents scanned), user, AFIS fingerprint data and data captured from e-NIC applications located at DS. The hard disks for the storage will be mirrored with RAID 5. Following diagram is the proposed server components at Head Office.

Figure 3.3 e-NIC Proposed Server Layout

Divisional System

The Branch System (to be use for DS and Mobile Units) configuration shall be based on web architecture using Windows client workstations. Its will serve functionalities of data capture, scanning, photo and finger capture, printing and certification process. Throughout 321 branches, our proposed solution will have same configuration and

specification base on the proposed layout define by the RPD. With the current requirement, one machine will be use for temporary storage to serve other PCs. All transaction data will be stored locally in this PC using mySQL database. Base on RPD requirement we are proposing two machines at each DS. Our architecture able serve all these functions and installed in one machine or many machines but as the numbers of PC grow, RPD should invest an additional dedicated application and database server.

Accessing and updating of data from the branch to the central system will be in a real-time online or offline base on network availability. At offline mode, data capture at every DS will be stored locally as required but the system upload or update to central data via background process. Proposed layout for each DS and mobile units as per diagram.
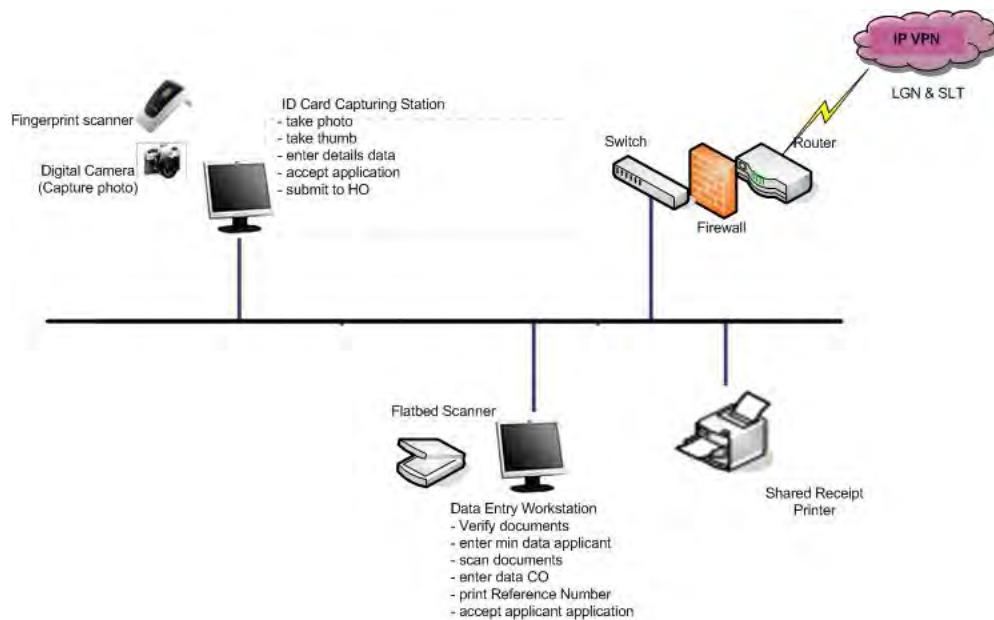
Figure 3.4 e-NIC Proposed DS and Mobile Layout

eNIC Web Applications

Our proposed e-NIC Web Applications to be installed at every DS, mobile units and Head Office will be develop and customize based on HeiTech core product name JADE and TAIPAN. It's develop using an open J2EE platform and some cases using .NET technology.   This solution will supports a variety of presentation layers, including JSP, XML/XSLT, JSF, as well as a verity of model layers, including Java Beans and EJB. J2EE gives an open enterprise wide solution all the way from the desktop clients and the servers; a single platform to manage, maintain and operate. Service Oriented Architecture (SOA) is the main architecture model being use in developing the solution. Our solution also utilize Object-relational mapping (ORM) solution name 'Hibernate Framework'. This provides an easy to use framework for mapping an object-oriented domain model to relational database. The proposed main backend database is IBM DB2 9 and each DS will install with mySQL database. Other applications such as AFIS and Card Printing being proposed as an independent system and integration will be adopted via web services.

Network Connectivity

WAN connectivity is required for each branch to access the Head Office data in secure manner and we are proposing an IP-VPN for all branches. Backup line should be available to maximize the network availability. Any DS already have existing connectivity with LGN, an upgrade to new bandwidth is necessary but DS without LGN or planned for will use difference network setup.

3.1.2   Technology Approach

The proposed system architecture will support following functionalities:-

§   Reliability/Availability

To provide a highly reliable and highly available solution, the critical applications will be hosted on clustered servers to provide 99.99% uptime. The less critical applications will be hosted in any industry standard servers, well known for their quality and reliability. The core switches, load balancers and firewall appliances are also in redundant configuration to ensure network availability.

§   Scalability

The proposed servers and storage has been sized to cater for the RPD requirements, based on certain assumptions. However, to allow some margin, the proposed systems have further room for growth. These systems can be scaled further either by adding more components (CPU, memory, hard disk, etc) or adding new boxes.

§   Security

At the infrastructure layer, perimeter defenses solutions as per in the Business Applications layer are also used, namely the firewalls, intrusion detection & prevention and antivirus solutions.

§   Serviceability

The proposed systems with high-availability configurations have hot-swap components. This allows the components to be serviced without any downtime to the whole system.

§   Interoperability

All the infrastructure components comply to industry standards to ensure that they can interoperate with compliance systems from other vendors.

§   Standardization

To address multi type of system, be it servers, operating systems or network equipments, standardization will be taken as much as possible. However, to ensure interoperability, just in case systems from different makes are still required, these systems must all conform to Open standards.

§   Fail back

When a failed server comes back online, the workload is automatically re-balanced in the cluster.

§   Manageability

Ability to install, configure and manage the system from a single location.

3.2   e-NIC Application Architecture Details

3.2.1   Application Framework
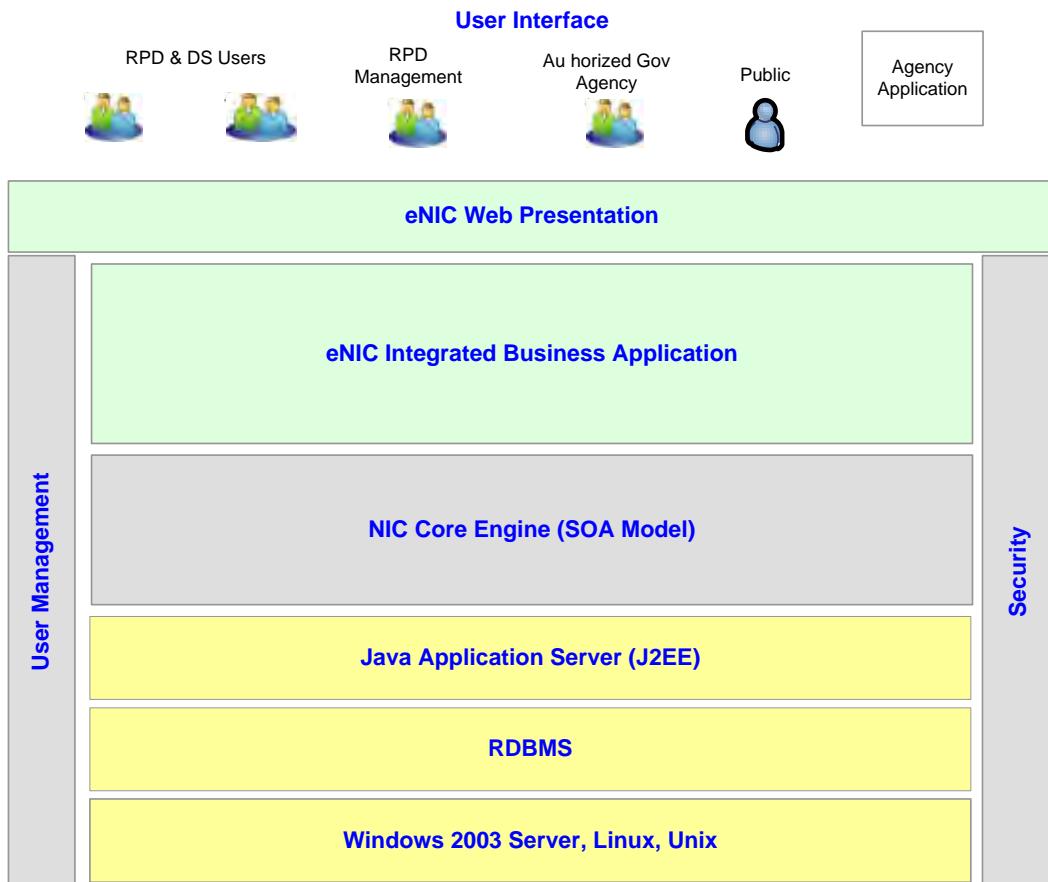
Figure 3.5: e-NIC Application Framework

Referring to diagram above, we envision and believe that the Application Framework
will support total requirement of RPD in providing the very best services to the public.
NIC Core Engine, User Management and Security will be customize and integrate
using HeiTech product JADE and TAIPAN. Main goals of Application Framework
include:

§   Consolidation of development work onto a single platform and SOA
model to promote a high level of reuse and integration

§   Modularity to improve the manageability and extensibility of developed
applications

§ Platform independence and vendor neutrality; e.g. Java and RDBMS, Windows, Linux

§ Scalability, centralise data and distributed processing.

The framework is built on top of J2EE. Applications built on the framework offer the following:

§ Modular architecture (reusable modules)

§ Common services (scheduling, database, users and groups, security, indexing, file storage)

§ Flexible deployment (support various platforms, applications servers and databases)

§ Scalability (low loads using open source technologies to enterprise systems)

§ Clustering support

§ Internationalization support

§ Template-driven

§ Workflow support

3.2.2   Application Architecture

This section will discuss a high level abstraction of the application architecture that will address the various technical characteristics of the application requirement. Our n-tier application architecture is independent of any specific product or technology but a reference to the proposed products is used to illustrate how the required criteria are met. The section will illustrate the mapping of functional requirements to this architecture by providing a logical view and a deployment view for the application components.

Our overall technical solution for e-NIC is based on Service Oriented Architecture (SOA). The proposed SOA application architecture shown in figure below, is a standards web based component architecture. The data tier/layer provides persistence for the application data, the business application layer contains all the business logic/rules and the user interface (UI) layer handles the IO support for consistent browser based look and feel functionality. The business application layer functionality is provided by J2EE standards based web application server. The

application tier in J2EE servers is a business objects container that hosts the business components.
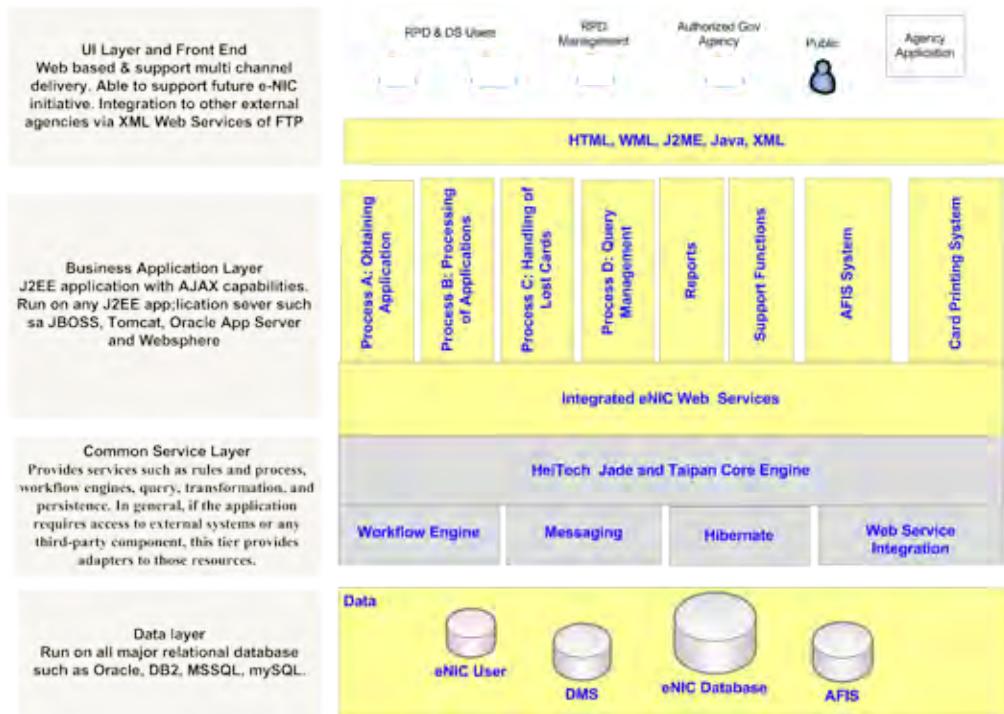
Figure 3.6: e-NIC Application Architecture and n-Tier Layer

User Interface and Front End Layer

All the User Interface (UI) parts of the application such as HTML, JSPs and servlets fall under the presentation layer. The front end layer is powered by the J2EE HTTP server. It processes the requests received over the network from the desktop clients. The Web listener component of the J2EE HTTP server accepts incoming HTTP requests (URLs) from desktop clients (browsers). If the page referenced by the URL needs advanced processing, the listener passes the request on to the servlet engine (J2EE Server), which contacts the database server as needed.

Some of UI features includes:-

> § Common, consistent, customizable and easy to use user interface (UI).

§   User friendly data entry capabilities with minimum keystroke for data capture using alternate data entry technologies (such as bar code reader) where applicable.

§   A common user interface for all application (maintain consistency for keystroke, screen layout).

§   List and look-up to ease data entry.

§   Able to handle validation check and range check for entry field

Business Application Layer

This layer consist all the business logic or rules to support all the functions required and provide an interface to front end or presentations layer. eNIC will have four main process and few other modules such as reports and system support. AFIS and ID Card system will have its independent system and interchange data is via web services. The customization and development will be base on agreed SRS identified.

Common Service Layer

The layer utilize the HeiTech proven JADE and TAIPAN core engine that process the business logic using SOA and provides the communication between the desktop tier, the database tier and external system. This layer is also referred to as the middle tier. It comprises the following:

§   HTTP Web server

§   Interface to any J2EE Application Server

§   Workflow System

§   Hibernate data access

§   XML implementation

HeiTech JADE and TAIPAN Core Engine is fully J2EE 1.3 compliant container that runs on JDK 1.4 Java or above Virtual Machine and provides complete support for JSPs, Servlets, Enterprise JavaBeans (EJBs), Web services and all J2EE services.

The layer will operate in close interaction with the workflow system and will interface with application system where applicable. The workflow engine will support and enable the application system to define and provide automatic distribution and routing of business tasks.

Data Layer

The data layer contains the database server, which stores all the data maintained for eNIC System. More specifically, the database layer contains the data server files and applications database executables that physically store the tables, indexes, and other database objects for the system. In general, the database server does not communicate directly with the desktop clients, but rather with the servers on the application tier, which mediate the communications between the database server and the client.

3.2.3   Architecture Qualities

Our proposed solution architecture has various attributes and among them are as per explained below:

i.   *'Smart Client' capabilities*

The proposed solution architecture provides flexible, cost-effective, reliable and powerful data processing capabilities. The key features are:

- § **Intelligent system -** The presentation and processing layer are user-friendly and the architecture is open and compliant to known basic standards.
- § **Device sharing -** *printers, disk storage and other peripherals can be shared by workstations to reduce cost and increase flexibility.*
- § **Expandability -** *each component of the system can be upgraded individually or the whole configuration can be changed to cater for future expansions.*
- § **Performance -** a higher level of service performance can be expected by implementation of co-operative processing (where data processing is divided at various levels).

ii.   *On-Line Transaction Processing*

- § Online and real-time updating and validation facility to all business points.

§ Online and real-time processing to update critical business transactions.

iii. System Security

The system allows only authorized users to access the applications. Each user is required to logon to the system for application access.

Each authorized user will have a security level attached to its profile defining the applications available to the user. Each user shall only see the applications or functions that they are allowed to access. All access to the system shall be audited.

All access to the system shall be audited. One of the system features is the user-id management and administration module. This module is to be managed by a System Administrator. All authorized users are required to be defined to the system via this module and levels of application access are to be managed within this module. Usage of this user-id management and administration module shall be logged for audit purposes whenever required.

Some standard features on the user access security includes:-

- § User login with different access level
- § Provision of password expiry mechanism
- § Restricted attempts during login and revocation access by system administrator
- § Users will be logged out after a period of inactivity
- § Users can only sign on to a single machine
- § Users authorization level needed for accessing any application/system
- § Auditing (System and Users)

Audit trail log is a standard feature of our solution. Audit trail logging relates to user access and also to transaction performed. Each user access is logged and each signed off shall also be audited. Likewise, each transaction performed is logged. The transaction log especially shall be the basis or the raw input to the creation of the transaction history statistical reports and also part of the system recovery procedure. The audit trail shall carry basic information such as the date, time, location and activity done for each authorized user.

Some standard features on the audit trail includes:-

§   Basic auditing on application login and application operations

§   When information is modified, user name, date & time, operation type and original value will be logged.

§   Audit of unauthorised login attempts.

§   Audit of any change effected on user profile and access rights.

§   Audit reports showing all activity by a user

3.2.4   SOA and Web Services

SOA is not "just a new technology", it's a new way of delivering and maintaining business functionality. It must be carefully architected into the design and structure of an application. SOA configures entities (services, registries, contracts, and proxies) to maximize loose coupling and reuse. Service architectures that we will create for e-NIC system shall be aligned with business requirements and processes which would entail organizing the business logic in a context independent way.

With properly used, SOAs created will provide a host of benefits to its users that include reduced coding, increased integration, decreased maintenance costs and increased quality of applications. Our main goal of SOA is to focus on the creation of generic services that can be used and reused.

Integration to e-NIC System by other system/services is made simple through Web Services. Web services provide an open, interoperable, and highly efficient framework for systems integration. Software components communicate with each other via standard SOAP and XML protocols. Web services are efficient because they build on the stateless (i.e., loosely coupled) environment of the Internet. The value of implementing web services will bring cost saving benefits to the organization. It can be realized in these areas:-

§   Development – Productivity improvements, shorter test cycles as a result of modularity, increased reuse and quicker builds.

§   Maintenance and support – Simplified modifications, standard-based access and architectural partitioning.

§   Operations – Automation of repetitive manual processes.
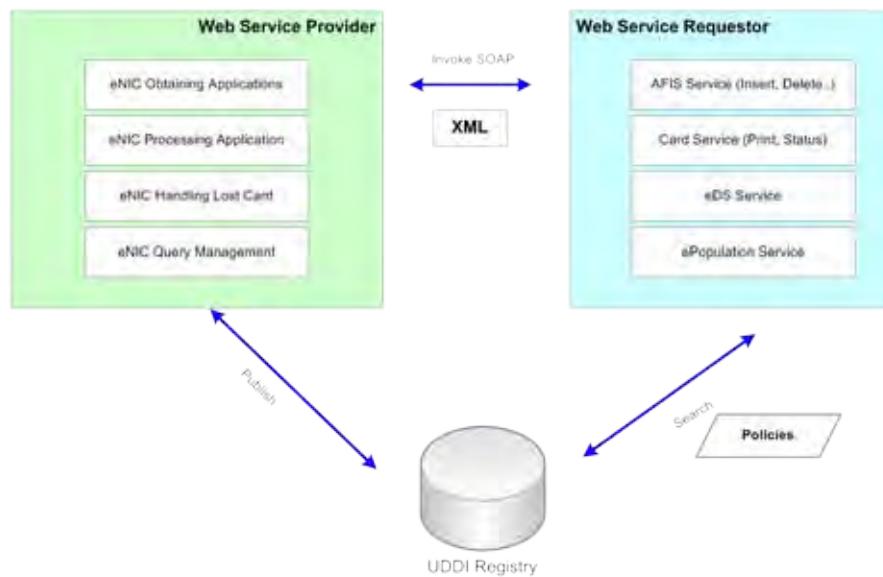
Figure 3-7: Web Services Integration

The web services integration approach will enable e-NIC System to dynamically integrate with other system/services from multi environment and platform that support web services standards. The other system only requires the WSDL definition to effectively exchange data with the service – and neither part needs to know how the other is implemented or in what format its underlying data is stored. Data is sent between the system(s) using SOAP messages, the format for which is specified in the WSDL definition - WSDL is an XML-based format for describing Web Services.

A series of protocols—eXtensible Markup Language (XML); Simple Object Access Protocol (SOAP); Web Service Description Language (WSDL); and Universal Description, Discovery, and Integration (UDDI)—provides the key standards for Web services and supports sophisticated communications between various nodes on a network. UDDI is optional but is beneficial when an organization wants its Web services to be discovered by internal and/or external service consumers.

3.2.5   Business Application

This section will discuss a high level abstraction of the system that will address the integrated solution business application architecture as required in the e-NIC System. The benefit of the solution proves to be the best that would cater and needs of RPD.

The business application is divided into two categories: Core and Supporting systems. The following table summarizes the overall business application proposal.

	Business Application	Proposed Solution
1	Process Obtaining Application	Customized application developed by HeiTech
2	Process Processing Applications	Customized application developed by HeiTech
3	Process Handling Lost Card	Customized application developed by HeiTech
4	Process Query Management	Customized application developed by HeiTech
5	Card Printing System	Customized application by OpSec Inc
6	Application and Data Management	Customized application developed by Heitech

Supporting system consists of:

	Business Application	Proposed Solution
1	Workflow Management	Customized application base on HeiTech JADE and TAIPAN core engine.
2	Reports	Customized application developed on open source reporting tools.
3	Integrations	Customise application base on Web Services

4	Automated Fingerprint System	Customise application base on NEC AFIS software.

3.2.6   Benefits of the Overall Solution Proposed

§   Adheres to Common Standards

The packaged best-of-breed solution takes advantage of the common and proven standards in the market, e.g. XML for data messaging, RDBMS for the central database, web technology as the guiding principle for multiple delivery channels and also Service Oriented Architecture (SOA) for ease of integration to external systems.

> **Architectural Benefits**
> · Adheres to Common Standards
> · Flexibility
> · Scalability
> · Fast Response Time
> · Centralized Application
> · Integrated Application
> · Web Services Enabled
> · SOA Compliant

§   Flexibility

Due to the design of the proposed system, it is relatively easy to add new functional components or services into the existing framework with a minimum amount of re-development required. This is achieved through the use of a common business rule engine to expedite the change policies or business requirements in the system.

§   Scalability

The use of mainframe to host the core system is designed to be flexible and upwardly scalable in case of increased load on the system.

§   Fast Response Time

For a faster response time, the solution proposed is a centralized with distributed branch approach with enterprise strength application server and an enterprise class branch server. With dynamic load balancing, resource

pooling, multithreading and results caching, the solution would achieve a very high performance.

Based on this approach, we offer a capability that assures RPD that the response time for online transactions with the application modules stay at the bare minimum.

§   Centralized Application

The centralized deployment of the core system would simplify and streamline the business process across all sites. It would also bring in significant maintenance cost reduction by reducing the need for maintaining separate systems at each site.

§   Integrated Application

Internal as well as external interfaces are managed and catered for in the proposed solution.

§   Web Services Enabled

Web Services provide a simplified mechanism to connect different applications regardless of the platform or operating system, technology or devices they use, or its location. It are based on industry standard protocols with universal vendor support that can leverage the internet for low cost communications, as well as other transport mechanisms. The loosely coupled messaging approach supports multiple connectivity and information sharing scenarios via **services** that are self-describing and can be automatically discovered.

§   Business / Service Oriented (SOA compliant)

Through the implementation of Web Services, particularly where they directly reflect some meaningful business concept, and especially where they are being exposed external – and hence are a reflection on the business. Some of the benefits of employing the Service Oriented Architecture (SOA) are reusable, eliminating dependency, simple to integrate, easy to understand and simpler process.

3.2.7 Security Descriptions

This section described the total security implementation of the proposed e-NIC solution designed by local technology provider and detailed descriptions of each products which has been used at each level of the solution architecture which bundled for provides maximum security for the solution. The proposed security implementation steps over the e-NIC solution architecture diagram is shown below.
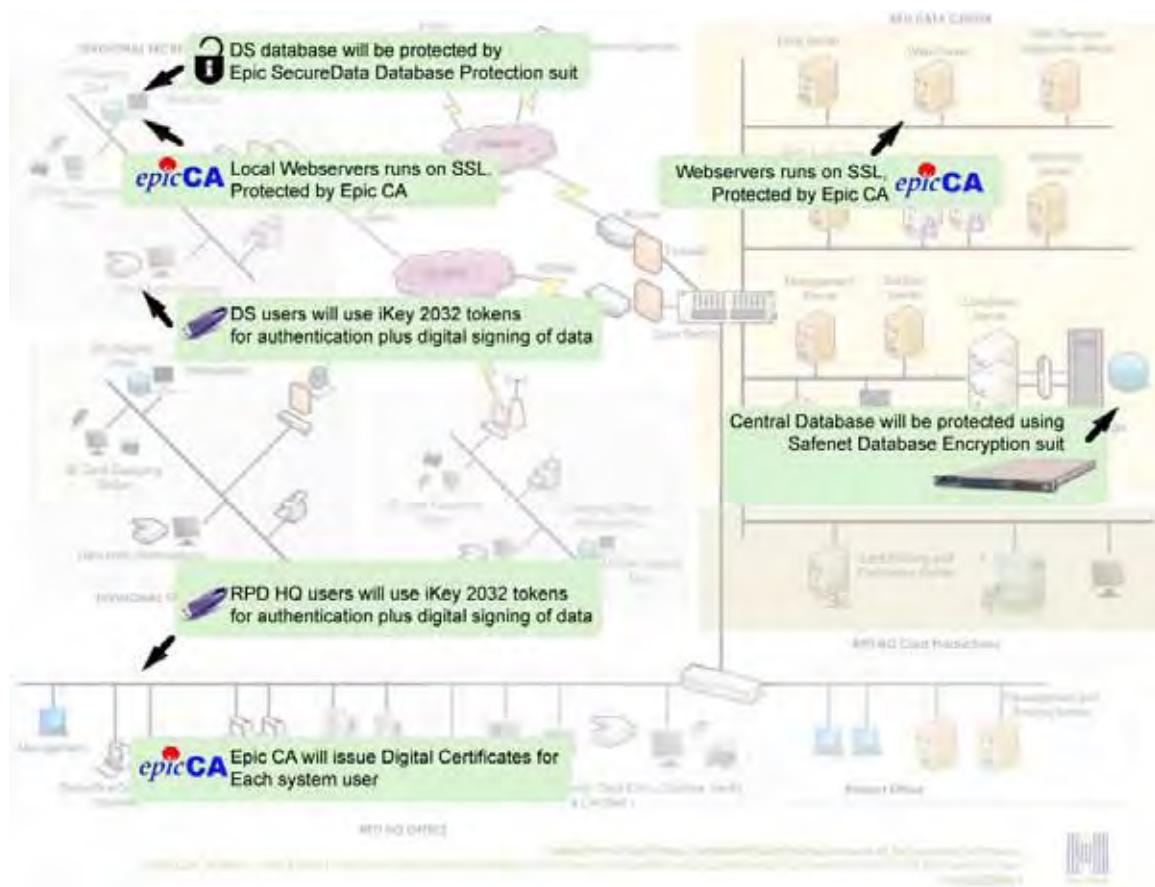
Figure 3-8: e-NIC Security Overview

3.2.7.1 Epic Certificate Authority Server (Epic CA)

Epic Certificate Authority Server (CA) issues X.509 Version 3 digital certificates to certificate requesting users as well as hardware. Certificate Authority runs fulltime offline for preserve security. Further Epic Certificate Authority can revoke issued digital certificates and publish Certificate Revocation Lists (CRL).

For detailed specification about Epic Certificate Authority, please refer the Epic CA's specification document published by Epic Lanka (*Epic CA Design Specification Rev. 4.7*)

3.2.7.2 Registration Authority Server (RA)

Epic Registration Authority Server (RA) is comes with Epic CA. Epic RA will work as online representation to Epic CA. Registration Authority will be the main repository for digital certificates. Registration Authority can access from anywhere from the corporate network or even can be exposed to Internet because it has a simple web based interface runs on SSL channel. It validates incoming certificate requests with administrator's assistance and passes valid requests to CA for certificate creation. Certificate requesting users can upload requests online and once their certificates ready they can download those online to their computers online. Following is the illustration diagram of CA/ RA and Certificate Issuance.
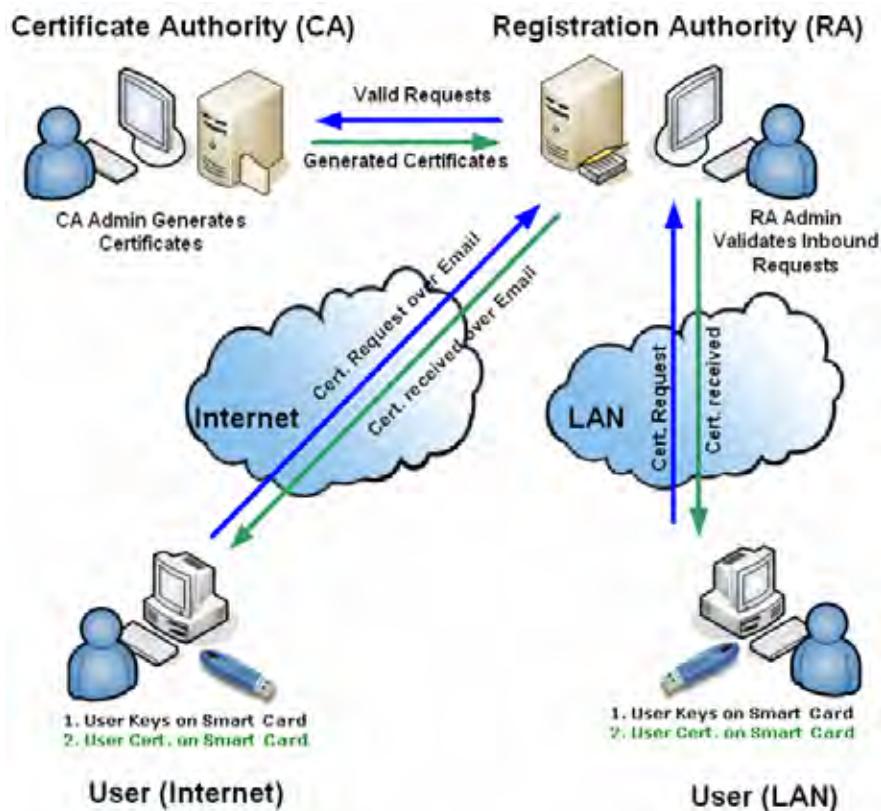
Figure 3-9: Epic CA, RA and Certificate Issuance relations

3.2.7.3 iKey 2032 USB Token

The SafeNet iKey 2032 USB Token is a USB-based portable PKI authentication token that generates and stores a private key and digital certificate on a device small enough to fit on a key chain. An extension of smart card technology, the iKey 2032 simply plugs into any USB port and provides strong user authentication without the need for costly reader devices. iKey 2032 is RoHS compliant, and is designed to support a wide range of desktop applications and portable systems. Its low-cost, compact design, and standard USB interface make it easier to deploy than cumbersome smart cards or one-time PIN tokens. Its FIPS Level 2 validated hardware and onboard key generation, key storage, encryption, and digital signing add high-assurance security to client applications.

SafeNet iKey 2032 USB Token brings two factor authentication to applications where security is critical. Unlike traditional password authentication that relies on weak, easily guessed passwords, iKey 2032 requires both a physical token (the iKey itself containing the user's unique PKI key) and the user's PIN to complete the authentication process.

iKey 2032 tokens will be used to hold user keys as well as user certificates in a secured manner. Each time a user tries to access any application which is related to eNIC, he/she needs to use his/her personalized iKey2032 token to authenticate him or her to the system. Unless a successful authentication using iKey 2032, any of the users will not be able to login to system for any sort of a operation.

3.2.7.4 Safenet DBE Suit (DataSecure)

DataSecure delivers capabilities for field-, column- and file-level encryption, seamless integration and centralized key and policy management enabling organizations to deploy an end-to-end encryption strategy with unparalleled ease and cost effectiveness. With its capabilities for encryption of sensitive data in Web servers, application servers, databases, file systems, mainframe and distributed environments, DataSecure enables organizations to protect the sensitive data that pose a business or liability risk whether credit card numbers, social security numbers, or other sensitive information.

DataSecure centralizes all cryptographic processing on a highly specialized appliance that delivers performance robust enough for the most demanding processing environments. A single appliance can handle over 100,000 encryptions per second, and SafeNet makes it easy, through load balancing capabilities, to add additional appliances and boost scalability as performance needs dictate. Further, by offloading CPU-intensive cryptographic processing from disparate servers and databases, DataSecure restores server and database performance to optimal levels resulting in less waiting for information and higher resource utilization. Designed specifically for business-critical processing, DataSecure also features replication, RAID support, health checking, and disaster recovery capabilities.

Safenet DBE Suit support for this application security by providing encryption for the centralized database systems of eNIC solution.

3.2.7.5 Data Protection Suit of Epic SecureData

All digitally signed logs will be collected on the e-NIC databases and the system comes with several mechanism to protect log data from the database level. For the protection of Branch level databases Once the system has configured successfully, installation system or application configuration functions will install those mechanisms to the hosted database server.

System is Capable of protecting event logs from following malicious activities.

- § Record deletion (Individual Delete).
- § All records Deletions at once (Delete All).
- § Record modifications (Updates).

If such activity has happened, system is capable of backing up the original record and notify the administrator about the incident. Also, system is capable of notifying the administrator about following malicious activities.

- § Data Flushing (Truncate).
- § Log Table Deletion.

Further, there is a mechanism to notify the administrator about database changes happens during non-operational hours. That we call as "Checksum mechanism". To activate checksum mechanism, there should be a official startup and close down

practice at Branch System and designated by the administrator. If such checkpoints are there, then the Branch System can train to track those check points and execute checksum mechanism.

3.2.7.6 Installation and Activation

Epic CA & Epic RA

As the first step of the deployment, Epic Certificate Authority (CA) and Epic Registration Authority (RA) has to install and activate. This two critical applications will install and maintains in Department of Registrations of Persons (DRP) Data Centre and will operates under the authority of Department of Registrations of Persons (DRP).

After initial installation, Epic CA will have to active by providing two super administrators of Department of Registrations of Persons (DRP) authority. Then, CA keys will be generated and then personalize Epic CA to Department of Registrations of Persons (DRP) and then, necessary users for CA can be created. Those users along with CA administrator will be able to generate necessary certificates which needs for users.

There is no any activation process for Epic Registration authority but, user validation policies has to customize in Registration Authority according to Department of Registrations of Persons (DRP) requirements. Then. Epic RA will be able to access inbound requests from users as well as from hardware.

In Epic CA, there is a option to runs on online mode, if Department of Registrations of Persons (DRP) needs to activate that feature, that has to activate before the initial operation. Though the CA runs online, that will serve only to Epic RA. Direct user accessibility has not been provided for Epic CA.

User Creation and Activation

After the initial deployment, all web servers has to secure using Epic CA by issuing digital certificates to those web servers. Then, those will be able to communicate over SSL.

E-NIC system has centralized user base. Except from Central Administration, there is no any facility provided in the system for create users from Branch systems or mobile systems. Users needed to create for Divisional Secretariat has to provide by the relevant administrative persons to the central administration and then central system administration will be creating and personalizing the relevant users request by DS.

System users will be issued a iKey 2032 USB token to hold and protect their user keys (Public Key & Private Key which necessary to use within the system under Public Key Infrastructure – PKI) as well as their personalized Digital Certificate. After receiving their Digital Certificate, that also can place in the USB token. Each time, a user needs to log in to e-NIC system from any accessible point, they have to provide their digital identity which is personalized digital certificate, in addition to provide their user name/ password pair.

Branch System (Divisional Secretariat System)

At the time of the installation of branch systems, local web servers will be protected by Epic CA by issuing digital certificates to those web servers. So that, those web servers will be able to communicate on secured way, using SSL channel.

As mentioned above, branch system will not have facility to create users. User creation will be centralized and can be done only by the central administration system.

3.2.7.7 System Operation

User Login

Once a user has personalized successfully, they can work with e-NIC system according to their designated system privileges. After the user personalization process, they have to use their iKey 2032 USB tokens whenever they tries to login and after the login, they have to retain the USB token "plugged" to their computers until they are logged out from the e-NIC systems. Even though a user has successfully login, if their Token has removed from the system, they will not allowed to execute any System features.

When a user tried to Access the system, first they have to provide their USB Token and select their personal digital certificate to verify the validity of the user. After proving the USB Token and select their certificate, system will start validating the user. Following list of validation will happen within 2 to 3 seconds of time.

§ Availability of Certificate and Keys (Private Key/ Public Key).

§ Certificate matching for the relevant user name/password pair.

§ Expiration status of the certificate.

§ Validity of the Root Certificate and relevant certificate chains.

§ Validity of the Public Key of the user.

§ Validity of the Private Key of the user.

§ Relationship between Private Key and Public Key.

§ Link between Certificate and Key pair.

If all above mentioned checks has been passed only the user will be able to login to the system by providing their username/ password. Once a user has logged in successfully, a digitally signed log entry will be placed in the local system database and for the signature generation process, logged user's private key will be used.

Digitally Signed Logs

Any operation of e-NIC systems which a designated user tries to execute will be digitally signed and logged. Those logs will be collected at the relevant database systems and that will depend on the systems and operations which the user has carried out. For generating the digital signature, logged user's private key will be used. Furthermore, while generating a digital signature, user's digital certificate also will embed to the digital signature which can be retrieved at anytime the administrator tried to verify the digital signature entry. So that, even after several years of the creation of log entry, the system will be able to identify the exact user who has created the log entry and extract his digital certificate from the signature.

Signature Verification

Each of individual log entries which has coupled with a relevant digital signatures will be able to verify for authenticity as well as to identify the user who has linked to generate the signature. This process only can be done by the administrator and the

way of verifying a signature is very simple. After verifying, a generic details of verification can be seen to the administrator and if he wishes to examine it further, he can retrieve the digital certificate which is embedded in the digital signature for verification purposes.

If the signature verification fails at the time of verification, there will be either the log record or the digital signature has mismatch situation to other. This is happened because of malicious alterations to either to signature or log entry or else, to both. Such situations has to further drill down by the administrator to see what has went wrong.

For a successful signature verification, exact log record as well as the relevant digital signature is needed. Each and every log entry will be coupled with a digital signature of it's own.
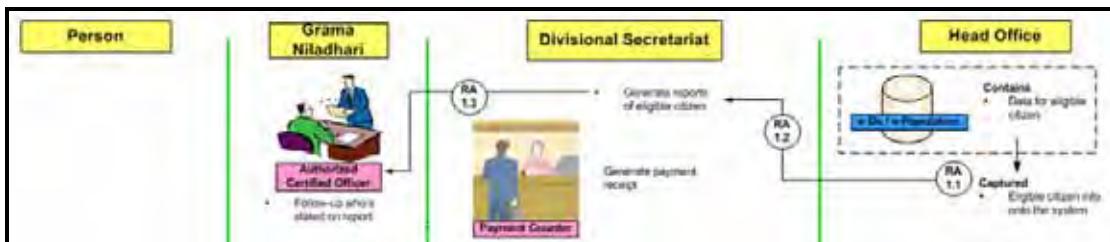
3.3 Proposed e-NIC Application Modules

3.3.1 Obtaining Application
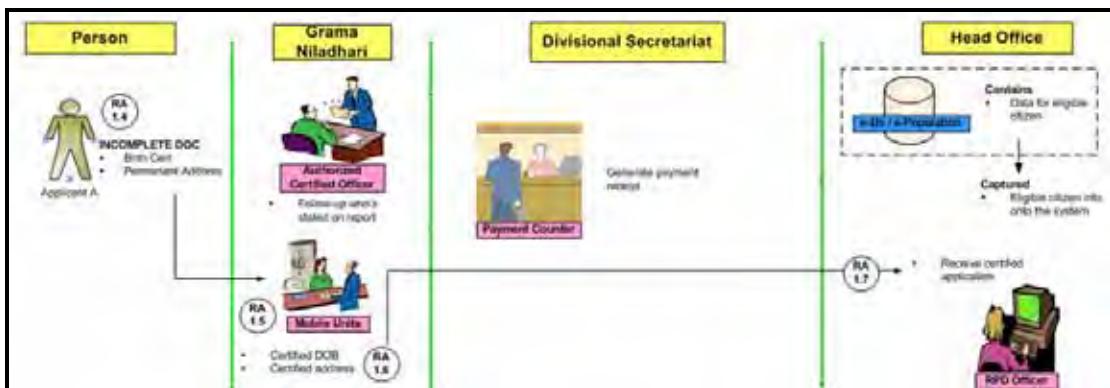
Once the citizen becomes eligible to register for National ID card, they are required to register through the e-NIC system.

3.3.1.1 Obtaining of Applications…Process

The process above showed the e-DS and e-Population system that contains the data of qualified applicants. A month before reaching the age of eligibility (15th year birthday) for registration the data (full name, birth certificate no., registrar details, permanent address) will be captured onto the system @RPD. The salient details will be stored in the RPD system Monthly lists (by DS and GN) and provided to the respective Grama Niladhari. GN will follow-up on those eligible citizens's to submit the applications. For mobile units or unconnected DS offices, this system provides encrypted data on media.

A. For Those Without Birth Certificate, Permanent Address
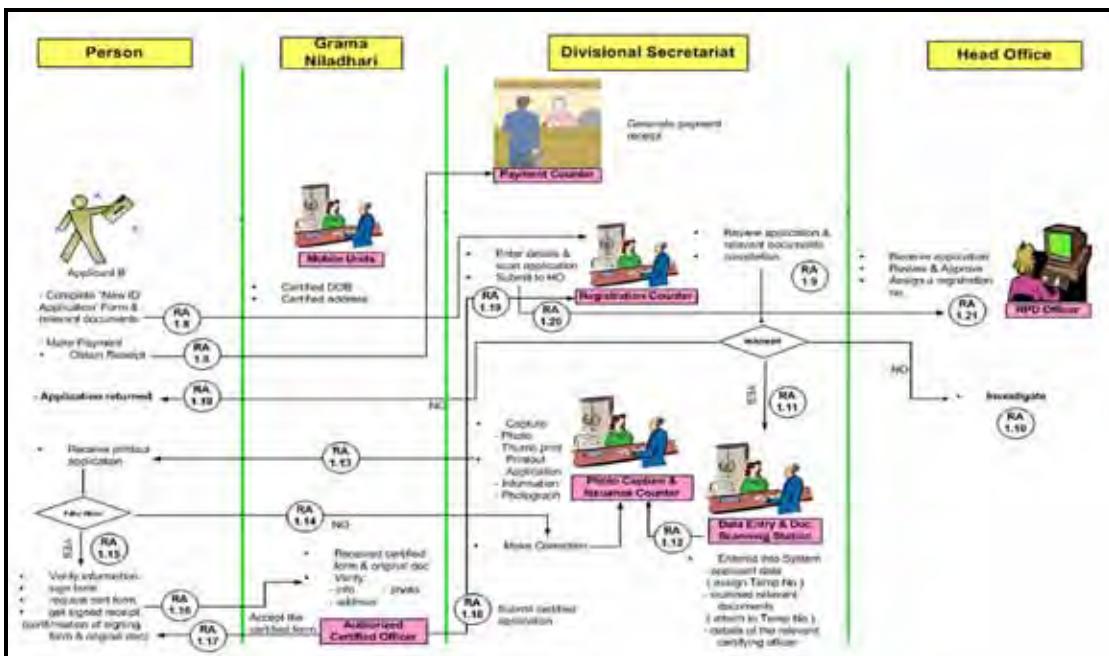
Mobile unit is to register those without permanent address and/or birth certificate. The date of birth is agreed based on the information given. The GN will certify the

address or probable address to put on the ID Card. Then the application will handed over to RPD Officer to certify the application.

B. On Completion of Filling Application

All systems online

The process above will run in on-line system at Divisional Secretariat office. The applicant will complete the application form (Form 'Process B-Format A') and hands over to the RPD Officer @DS together with the relevant documents and then make payment. RPD Officer @DS will review the application and documentation. If the application is accepted, the data will be entered into the system such as name, address, date of birth and assign the Temporary Number. This system will scan the relevant documents and attached to the Temporary Number assigned. Details of the relevant Certifying Officer are also entered into the system. If the application is rejected, it will return to the applicant or handed over to HO for investigation. This system will capture the photograph and thumb impression of the applicant then printout and hand over to the applicant to review and confirm the details. If not ok, the applicant can request the RPD Officer @DS to make corrections. If ok, the applicant will verify and sign the form. The applicant is requested to obtain the certification from an Authorized Certifying Officer and hand over back to the Authorized Certifying Officer, and then he will verify the information on the form. Certifying Officer will

accept the form and give the signed receipt to the applicant confirming acceptance of forms and all indicated Original Documents.

Mobile and Offline modes

The process above is for those DS offices that are currently offline and mobile units. If the system is currently offline, the relevant information will locally store. The daily data from each machine will encrypted and put into prescribed media and sent to the RPD Head Office. A note will be generated giving the details of the information being sent. The DS Office will be able to regenerate a day's data and the data are available for 6 months on the local machine.

Disconnected DS Office

The process above is for those DS offices that are not connected. If the system is currently offline, the relevant information will locally store. The daily data from each machine will encrypted and put into prescribed media and sent to the RPD Head Office. A note will be generated giving details of the information being sent. The DS Office will be able to regenerate a day's data and the data are available for 6 months on the local machine.
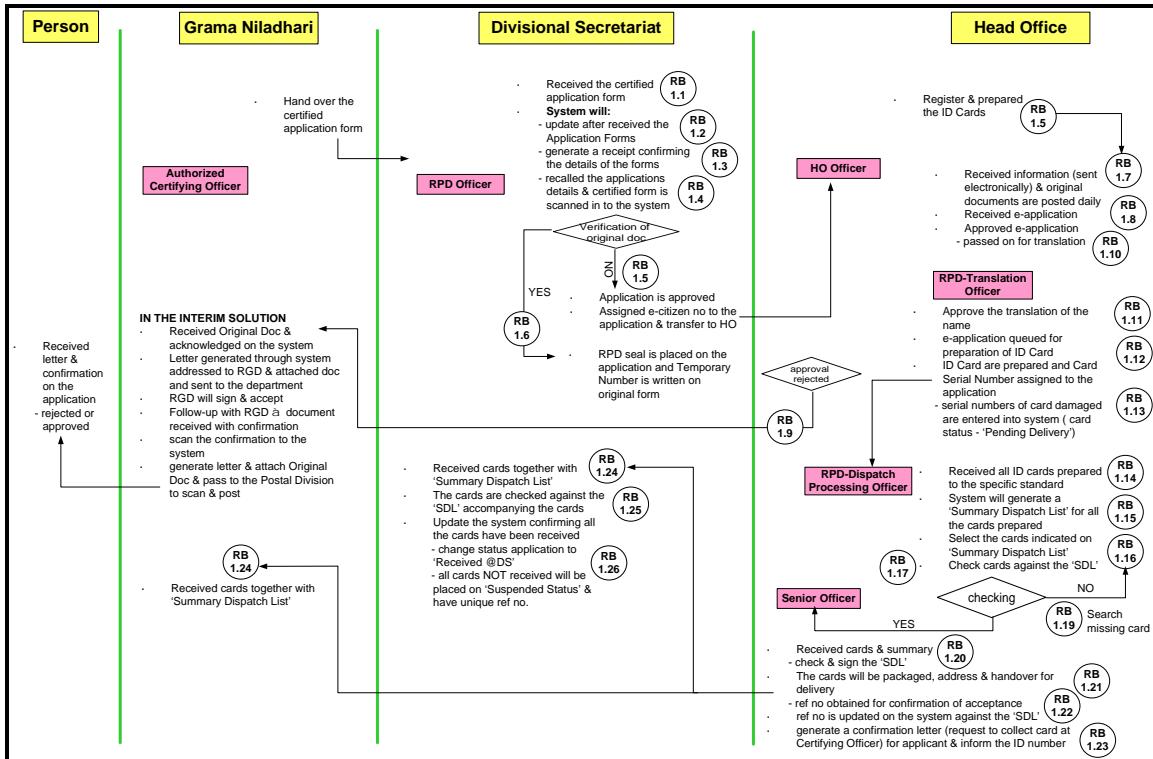
C. Registering of Certifying Officers(All Certifying Officers will be Requested to Register with the RPD)

To register a certifying officer, the certifying officer is required to submit an Application for Registration. The completed application will be sent to the RPD Officer at DS. The RPD Officer will enter the details into the system, scan the application and electronically send it to the HO for approval. The HO will review and approve the application. Once approved, a Registration Number will be created. The Seal & Signature associated with the Certifying Officer will be saved with the information for easy reference.

3.3.2   Processing Application & Record Management

3.3.2.1 Processing of First Application

Person	Grama Niladhari	Divisional Secretariat	Head Office

Divisional Secretariat
- Received the certified application form **RB 1.1**
- **System will:** **RB 1.2**
  - update after received the Application Forms
  - generate a receipt confirming the details of the forms **RB 1.3**
  - recalled the applications details & certified form is scanned in to the system **RB 1.4**

Verification of original doc **RB 1.5**

YES **RB 1.6**

- Application is approved Assigned e-citizen no to the application & transfer to HO
- RPD seal is placed on the application and Temporary Number is written on original form

approval rejected **RB 1.9**

Grama Niladhari

Authorized Certifying Officer

RPD Officer

IN THE INTERIM SOLUTION
- Received Original Doc & acknowledged on the system
- Letter generated through system addressed to RGD & attached doc and sent to the department
- RGD will sign & accept
- Follow-up with RGD a document received with confirmation
- scan the confirmation to the system
- generate letter & attach Original Doc & pass to the Postal Division to scan & post

Person
- Received letter & confirmation on the application
  - rejected or approved

- Received cards together with 'Summary Dispatch List' **RB 1.24**
- The cards are checked against the 'SDL' accompanying the cards **RB 1.25**
- Update the system confirming all the cards have been received **RB 1.26**
  - change status application to 'Received @DS'
  - all cards NOT received will be placed on 'Suspended Status' & have unique ref no.

RB 1.24
- Received cards together with 'Summary Dispatch List'

Head Office
- Register & prepared the ID Cards **RB 1.5**
- **RB 1.7**
- Received information (sent electronically) & original documents are posted daily **RB 1.8**
- Received e-application
- Approved e-application
  - passed on for translation **RB 1.10**

HO Officer

RPD-Translation Officer
- Approve the translation of the name **RB 1.11**
- e-application queued for preparation of ID Card **RB 1.12**
- ID Card are prepared and Card Serial Number assigned to the application **RB 1.13**
- serial numbers of card damaged are entered into system (card status - 'Pending Delivery')

RPD-Dispatch Processing Officer
- Received all ID cards prepared to the specific standard **RB 1.14**
- System will generate a 'Summary Dispatch List' for all the cards prepared **RB 1.15**
- Select the cards indicated on 'Summary Dispatch List' **RB 1.16**
- Check cards against the 'SDL'

RB 1.17

checking **RB 1.19** NO — Search missing card

Senior Officer YES

RB 1.20
- Received cards & summary
  - check & sign the 'SDL'
- The cards will be packaged, address & handover for delivery **RB 1.21**
  - ref no obtained for confirmation of acceptance **RB 1.22**
- ref no is updated on the system against the 'SDL'
- generate a confirmation letter (request to collect card at Certifying Officer) for applicant & inform the ID number **RB 1.23**

A. Cards Not Acknowledged On Time

This solution provides an alarm function which will notify all Senior Officers when the RPD Officer does not acknowledge the receipt of the cards within the predefined timeframe. The status of the cards will be changed to "Suspended Status".

B. Investigate Delays or Non Receipt of Cards

The diagram above explains the process of investigation on delays and non receipt of cards. Investigations will be done by the Relevant Senior Officer. The outcome of the investigation will be updated in the system based on the notification done by the system. Based on the response, if the Commissioner of RPD has further queries, the investigation will be done again. If there are no further queries, the Commissioner will update the query status to "Completed". The application status will changed from "Suspended Status" to "Active" or "Cancelled". The Commissioner will have the authority to change the status of the Card. The changes will be recorded for tracking purposes. If the Cards are cancelled, new cards will be prepared.

C. Storage and Issue of Cards@DS
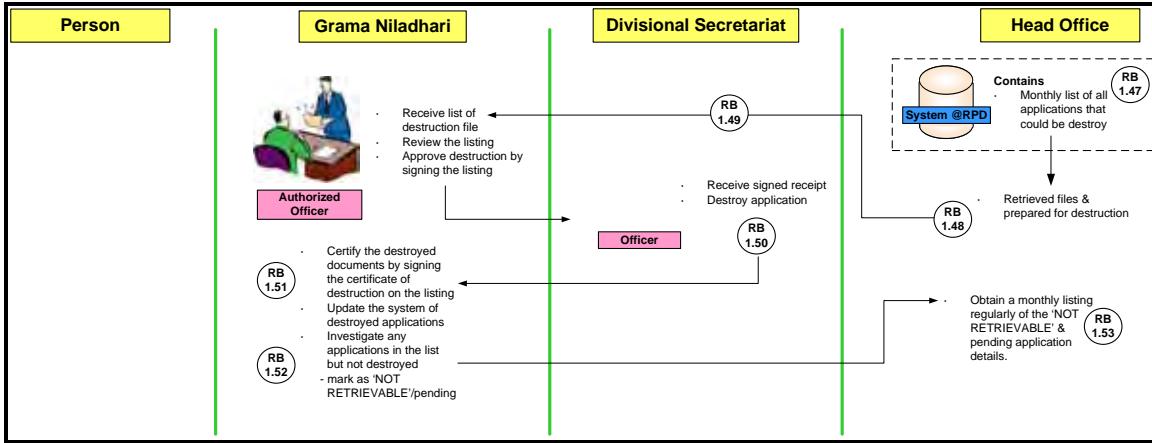
All the Cards will be stacked in a secured manner based on GN Division order. The system allows the RPD officer to check in the system based on the "Approved Receipt" handed from the applicant. If the system shows that the ID Card is received, the card will be retrieved by the "Unique DS-List Number" displayed in the system. The applicant is required to verify the information on the ID card and the thumb impression. If any of the verification fail, applicant are required to complain through a Special Report. The system is able to record incorrect details. A complaint number will be generated by the system.

If all the verifications process pass, the RPD Officer will update into the system on the status of the ID Card.   Upon receiving the ID Card, applicants are required to sign the 'Approved Receipt' and fill in the "Citizen Satisfaction Questionnaire". The system allows the signed "Approved Receipt" to be scanned and uploaded to the system. Card status will be updated to "valid".
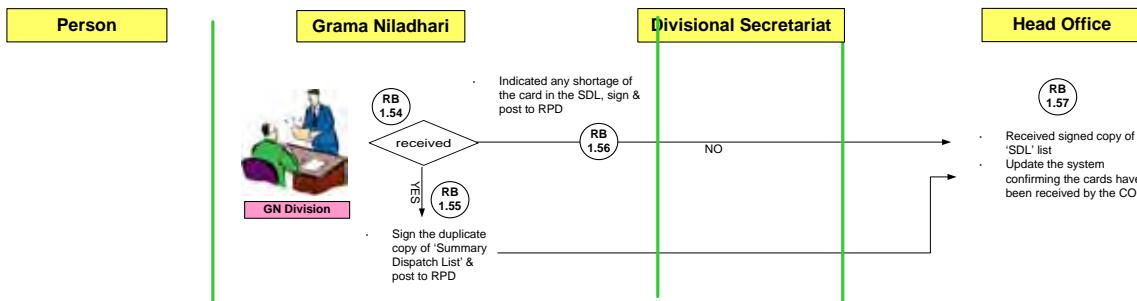
D. Destruction of Old Applications

The destruction of old applications is done on a monthly basis. The system will generate a monthly reporting on the list to be destroyed. Besides monthly report, the system also allows users to generate report based on specific date or a scheduled visit of a responsible officer visiting the DS. The report will list the Receipt Number, Date and Name. Based on the report, the hardcopy applications are retrieved and prepared for destruction. Once the report and hardcopy applications have been reviewed and signed, the Officer at the DS will destroy the applications. The authorized officer will certify the destruction by signing the certificate of destruction and update the system on the status. The report will be generated and emailed to the head of the department for monitoring purposes especially on the 'NOT RETRIEVABLE" and pending application that have exceeded more than 45 days. Report will be listing the Receipt Number, Date, Name and Address.

E. Cards Handed Over to Certifying Officers for Distribution
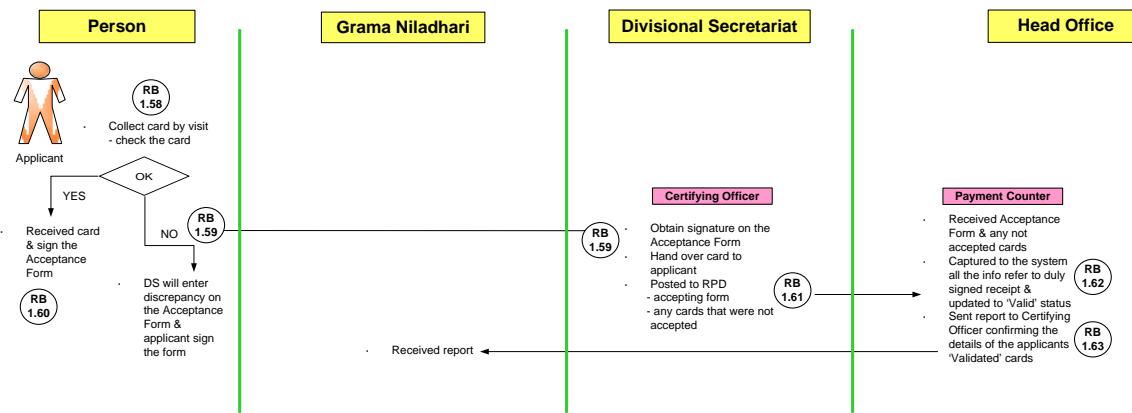
This module is intended to verify all cards listed are received by the Certifying Officer(CO). A Summary Dispatch List(SDL) is generated listing the CO Name, ID,

Date, Card Number and Name. This SDL will be handed over to the CO together with the ID Cards for verification. If all of the cards are received, the CO are required to sign the SDL and hand it over to RPD. If any shortage of the card is detected, the CO will update the SDL indicating on the shortage. Upon receiving the SDL, RPD will update the system confirming the cards have been handed over to the CO.

F. On Distribution of the Cards

The applicant is required to verify the information on the ID card. If any of the verification fail, applicant are required to fill in and sign the Acceptance Form and hand it over to the Certifying Officer(CO). If there are no discrepancies, the card is handover to the applicant. When the cards have been issued, the Acceptance Form and the SDL will be posted to the RPD together with unaccepted cards, if any. Upon receiving the SDL, the officer will update the system to "Valid" status. The system is able to generate a report listing the details of "Validated" cards for selected division on a monthly basis.
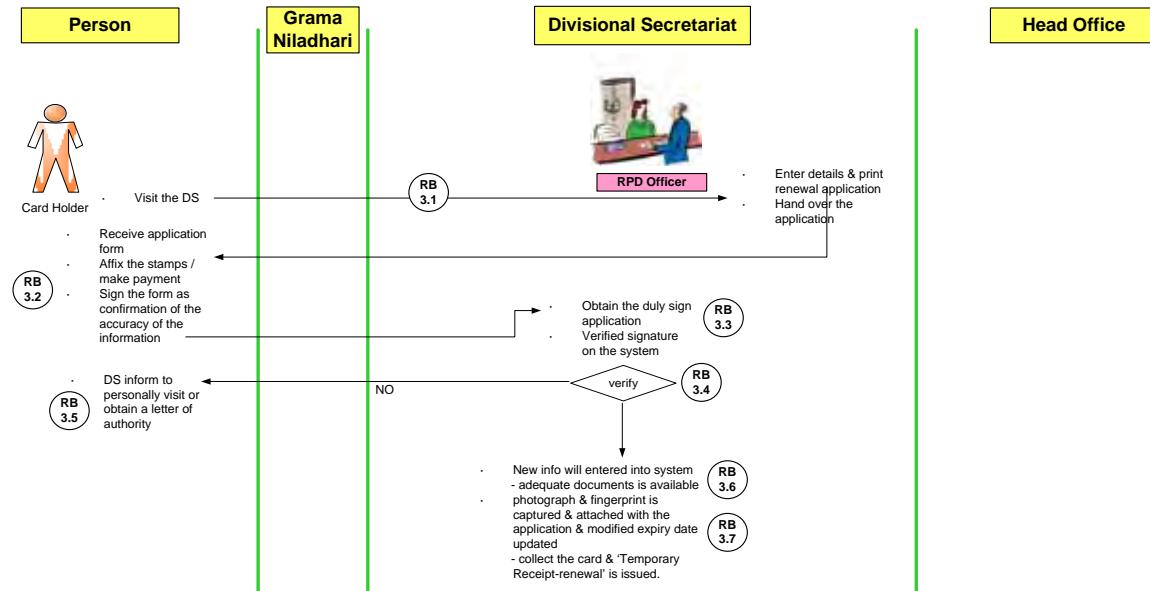
3.3.2.2 Processing of CI Applications

The purpose of this module is to process changes of address or marital status. The changed information is generated by the e-DS or e-Citizens system whereby the system will be updated with the Pending Change. When the citizen visits the DS office, details of the citizen will be entered into the system. Then, the RPD will print the application and hand it to the citizen to affix stamp/make payment and sign it.

The signed application will be handed to the RPD officer at DS. The RPD officer will verify the signature on the application form against the signature in the system. If the validation process is not successful, applicant is advised to personally visit or provide a letter of authority. If there are still any changes in the application, RPD officer will upload the information.

3.3.2.3 Processing of Regular Renewal Application
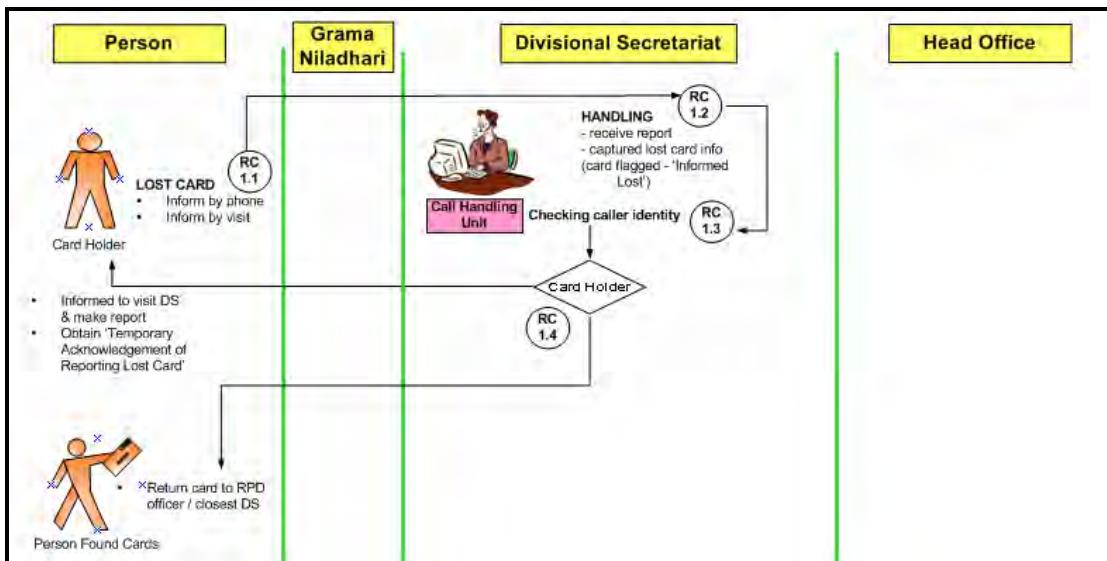
Applicants have to visit DS to do the renewal process. At the DS, applicants have to fill in and sign the renewal application form. Once completed, the form should be handed back to the RPD officer. RPD officer will verify the signature on the application form against the signature in the system. If the signature does not match, the applicants have to personally visit or provide a letter of authority. The RPD will update the system for any new information, attach the photograph and fingerprint. The system will update the modified expiry date. RPD officer will collect the card and issue a "Temporary Receipt – Renewal".

3.3.3   Process of Retrieving & Issuing of Lost Cards

3.3.3.1 Reporting of a Lost Card
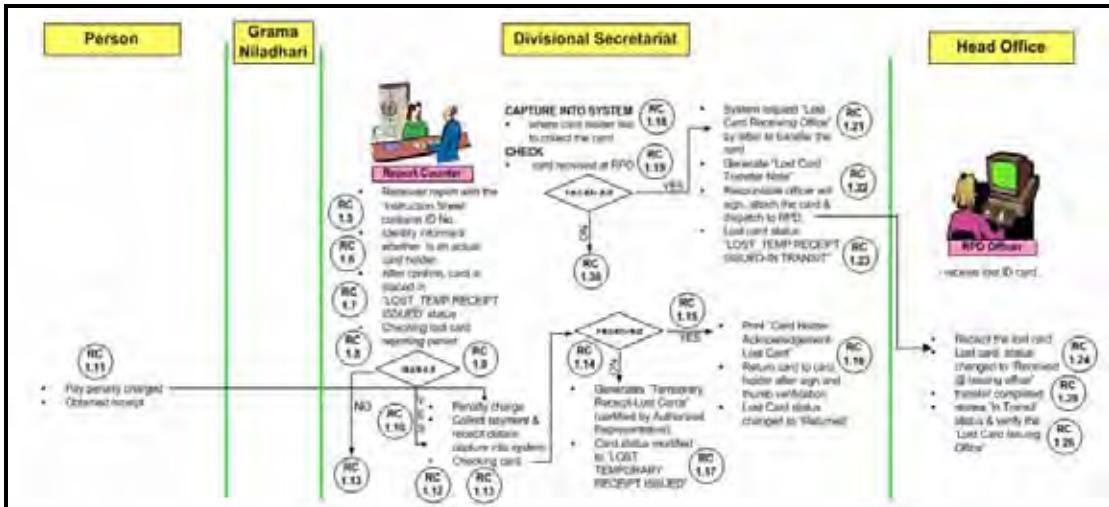
A. Card Holder on 3rd Party Informs by Phone

This diagram above showed a lost ID Card informed by phone. Any person (card holder or 3rd party) informing over the telephone will be transferred to the Call Handling Unit. System will captured the details (identity, how found and method of returning) of lost card and card flagged as "Informed Lost". System will clarify the caller identity by cross checking the informant's data. System also can recall based on callers ID number or ID card information and history. If informant is the Card Holder, he is informed to report the lost card at DS office (with 'Instruction sheet' issued at the time of issuing the card) and obtain a 'Temporary Acknowledgement of Reporting Lost Card' (Date, ID Card number, Name, Address, Validity Period). If informant is a 3rd party, he is informed to return the card to the RPD office or closest DS.
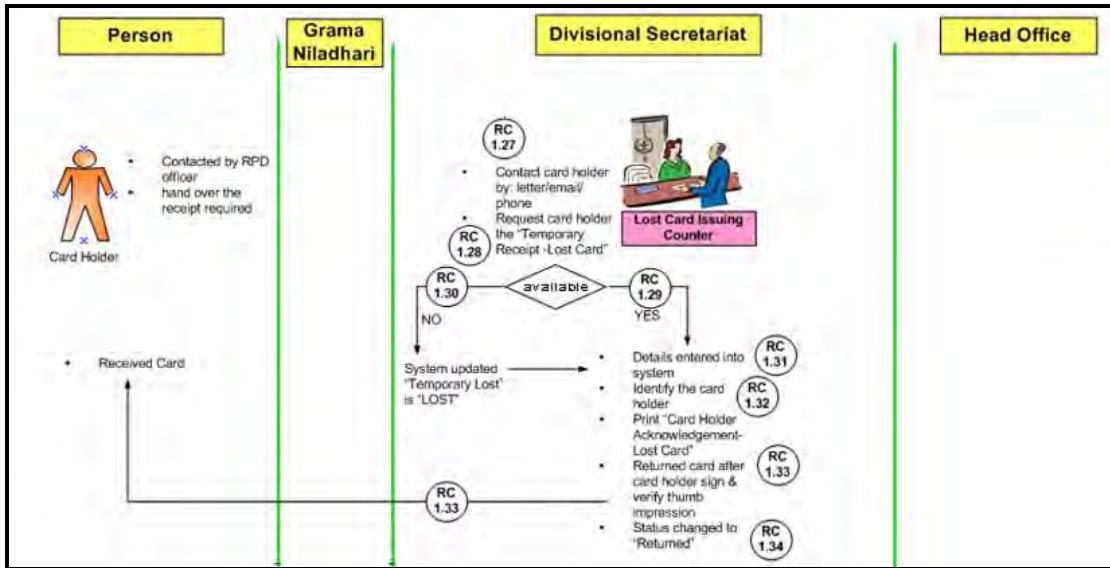
B. Card Holder Visits the DS Office
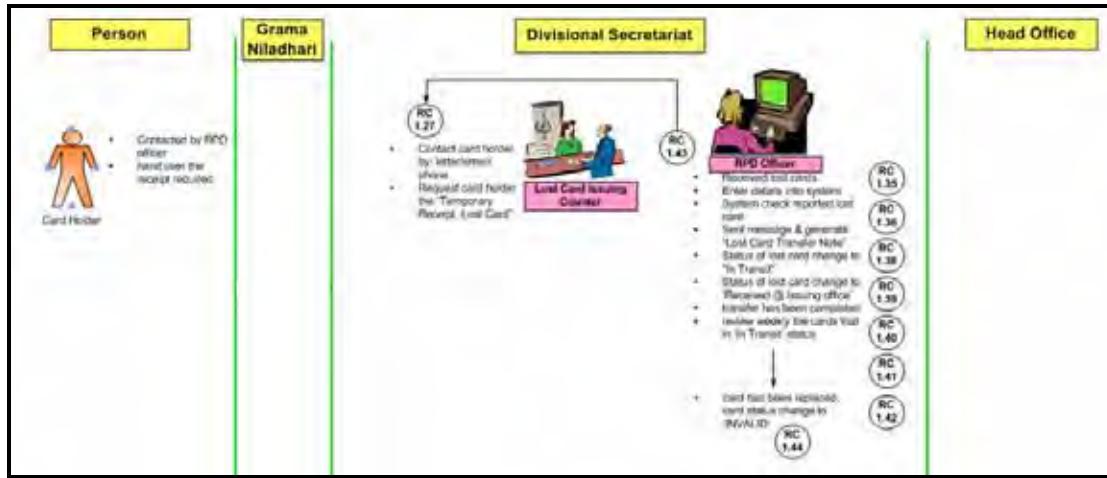
This diagram above showed a lost ID Card informed by Card Holder visiting the DS office. Card Holder will hand over the "Instruction Sheet" to the RPD Officer. The details will be recalled based on the ID Number and RPD Officer @DS will identify the informant. After RPD Officer identified the informant and confirms to the system, the card is placed in "LOST-TEMP.RECEIPT ISSUED" status. The system will check if the 'specified period for reporting lost card' has lapsed or not. If already lapsed, the system generates a statement for penalty charges for not reporting the loss and a receipt issued. The system will capture the receipt details for any penalties charges and checks whether the card has been received at the DS or not. If yes, the "Card Holder Acknowledgement-Lost Card" is printed and returned to the Card Holder after signing and thumb verification. The system will be updated when "Card Holder Acknowledgement-Lost Card" received and status changed to "Returned" and Validity Status revised to "VALID". System will generates the "Temporary Receipt" which certified by an Authorized Representative of the DS and Card holder signed. The system will capture details of where (DS Office) the Card Holder would like to collect the lost card. System will check if the card has been received at any RPD designated office. System will requests the 'Lost Card Receiving Office' letter to transfer the lost card to the DS office requested by the Card Holder. Information includes ID Card Number, name, address and contact details. System will capture details of lost cards received via a transfer note from the Lost Card Receiving Office. Status card is updated as "received @ issuing office" after the receipt is acknowledge on the system.

C. Action Taken by the Lost Card Issuing Office

The diagram showed the action taken by the Lost Card Issuing Officer. The RPD Officer @Lost Card Issuing Officer received the lost cards and will contacts the Card Holder to collect the card. Before collect the card, Card Holder is requested to hand over the 'Temporary Receipts of Lost Card'. If the 'Temporary Receipts of Lost Card' is NOT available, system updated the 'Temporary Receipts of Lost Card' to "LOST". If 'Temporary Receipts of Lost Card' is available, system entered the details of information provided by Card Holder. Card Holder will receive an email or letter said that the card is available at the lost card office at the RPD for collection. The 'Card Holder Acknowledgement-Lost Card' is printed and card returned to the Card Holder after signing and thumb print verification. Status of the Lost Card on the system changed to "returned" and the Validity Status revised to "VALID".
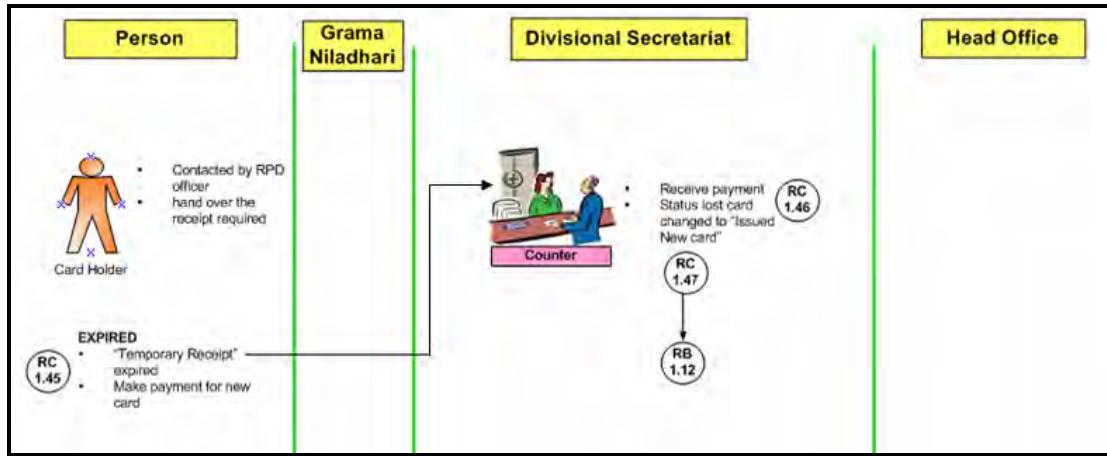
D. Receiving of Lost Cards at RPD Designated Offices

The diagram showed the receiving of lost cards at RPD designated offices. The details will be entered onto the system. The system will check whether the loss has been reported. For loss reported cards, system will generate a "Lost Card Transfer Note" and return to the Lost Card Issuing Office. System will capture location and card number being held and system will generate the found reference number. The card status will be changed to "In Transit". Issuing Office records receipt of cards and marks card status as "Received @issuing office". The "Lost Card Receiving Offices" will review weekly of loss "In Transit" status cards with "Lost Card Issuing Office". If new cards has been issued or replaced, card status will be changed to "Invalid".
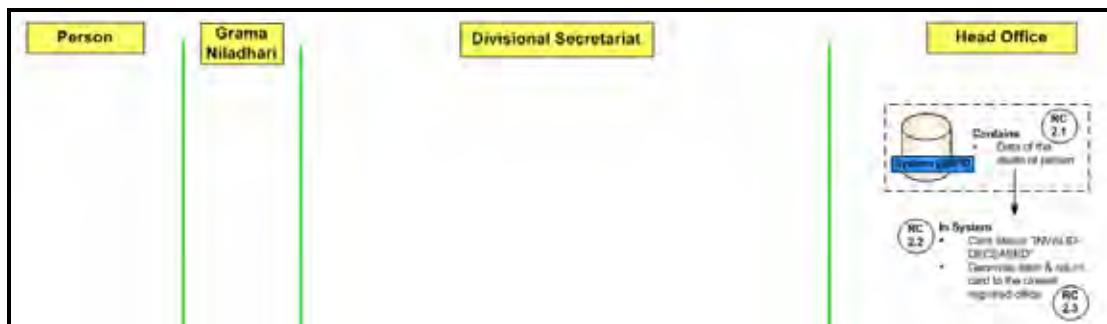
E. Issue of New ID Card

The diagram showed the Issue of New ID Card. 10 days prior to the expiry date of "temporary Receipt". System will generate a letter requesting card holder to collect and make payment for new card from respective DS office. The letter includes name, address, date, ID Card Number and which DS office. On acceptance the receipt at the Officer @DS, the card status will be changed to "Issued New Card".

3.3.3.2 Processing of Recording the Death of a Registered Person

A. On Receipt of Information on the Death of a Card Holder
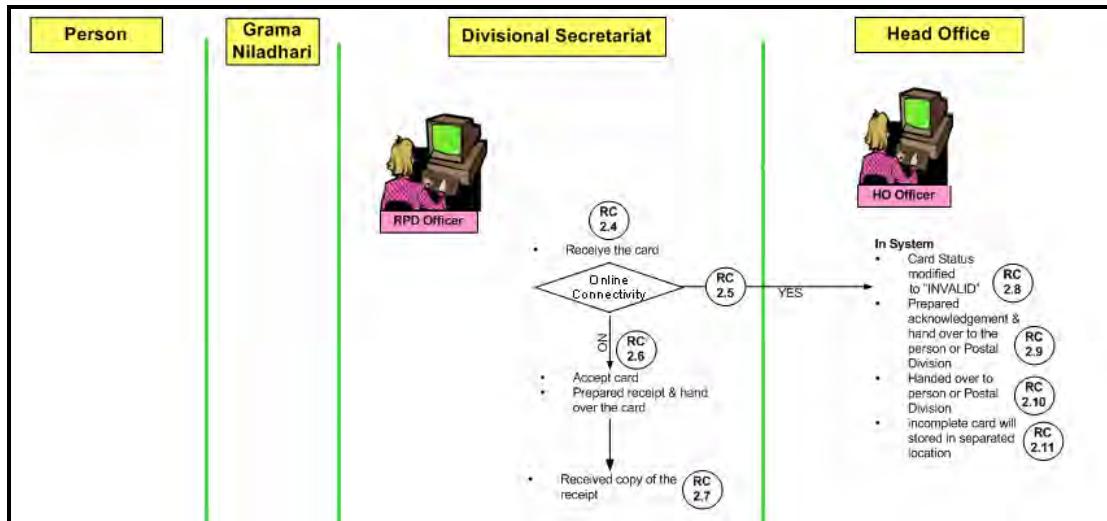
The diagram above showed the process of recording a death of a person. On receipt of information on the death of person based on e-Population application the information will be updated on the system @RPD. If e-Population is not available, await for the arrival of a relevant card at a registered office. The system will record the card status as "INVALID-DECEASED". System will generate letter to next of kin (per e-Population system) stating that the card has been invalidated and to return the

card to the closest registered office. Letter will also contain the deceased NIC number, name and address.

B. On Receipt of Card @ Registered Office

The diagram showed the receipt of card at registered office. If the office doesn't have online connectivity, the card will be accepted by an officer at the Registered Office and a receipt contains date, DS Office card id, name, or be posted is prepared and handed over to the person handing the card. The card will physically invalidated and attach with copy of the receipt and sent to the RPD Office. If the office has an online connectivity and on receipt of the card (card number, ID of person handling over card) at RPD office, the system will update confirming the return of the card and the status of the card will be modified to "INVALID". An acknowledgement will be prepared and either handed over to the person who handing the card or sent to the Postal Division for posting.

C. Destruction of 'INVALID' Cards
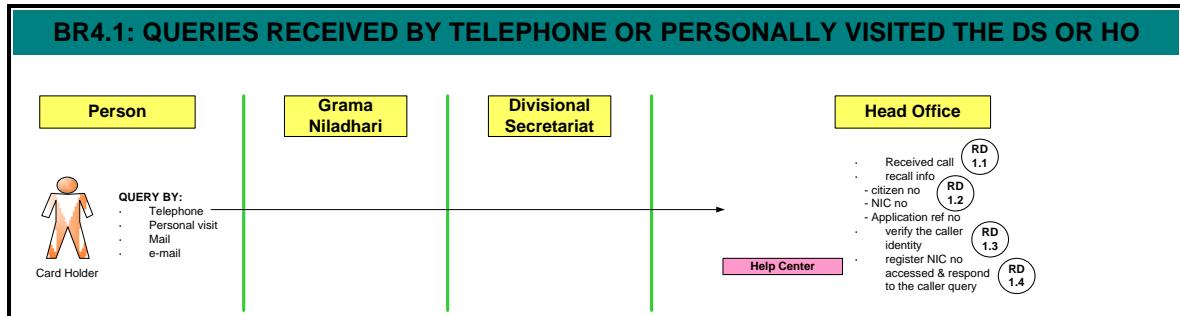
The diagram above showed the destruction of invalid cards process. System will generate a quarterly report of all cards returned and currently in the office. A special serial number will be assigned and report containing retained "INVALID" cards suitable for destruction. The report contains Card number, name, address and date. System will be updated with Card Destroyed, if any cards have been misplaced such fact is indicated on the report and system updated with status of card as "NOT RETRIEVABLE" and e-mail to the commissioner. The report is signed by the Officer responsible for destroying the "INVALID" cards and the approved report will be sent to the person responsible for destroying the cards at HO. The Officer at HO will file the reports received in serial number order in the respective files assigned for each authorized to retain such cards.

3.3.4   Process of Query Management
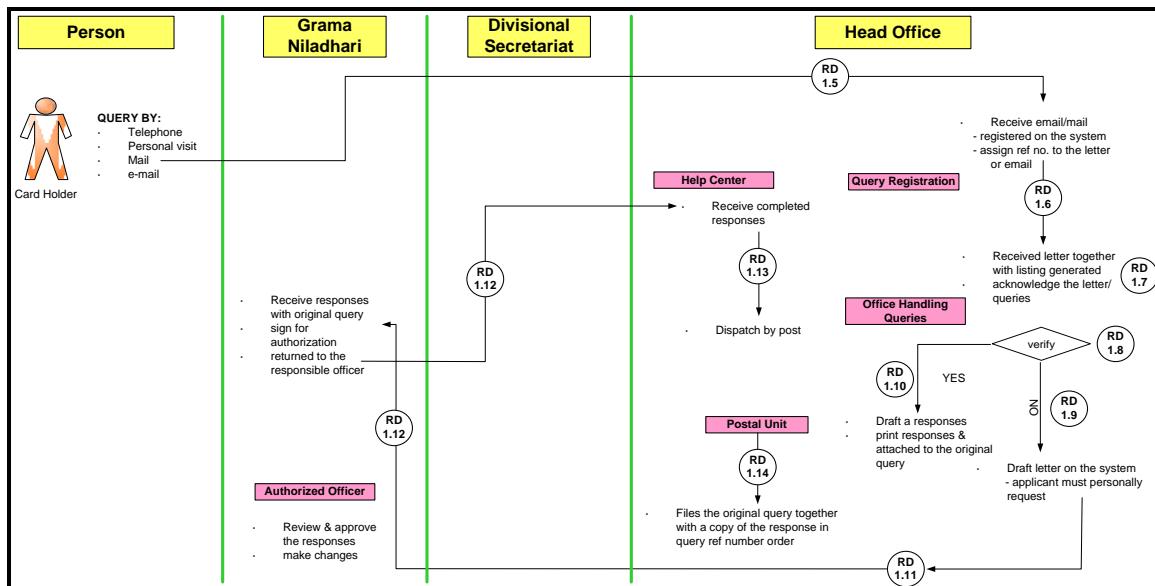
3.3.4.1 Queries on Applications/Renewal or Lost Card

A. Queries Received by Telephone or Personally Visited the DS or HO

The diagram above shows the process to do queries via Telephone or applicant personally visits the DS or HO. When applicant calls, the help center will entertain based on the preferred language of the caller. Query on application or lost card will be entertained by an Automated Voice Response system. The verification process requires the eCitizen Number, NIC number or Application reference number. If the caller is authorized, the assistant will register the NIC number and respond to the caller's query.

B. Queries Received by Mail(All Queries by Mail will be handled by HO)
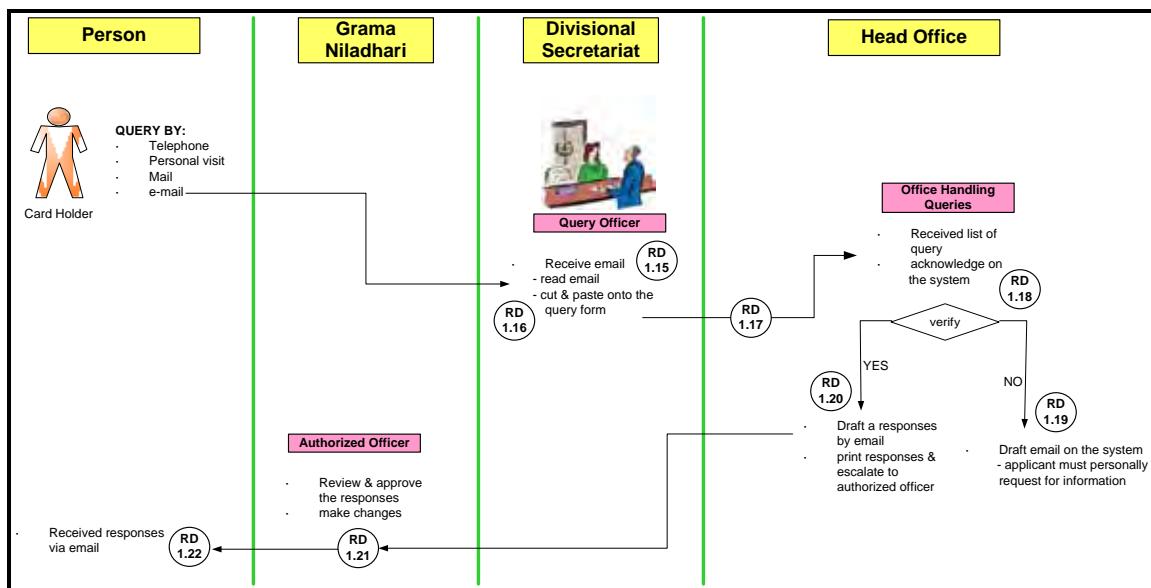
The diagram above shows the process to do queries via mail. Upon receive of the mail, the officer at DS or HO will register the query through the system with the Query Reference Number(QRN) assigned by the Postal Division or officer accepting the

query. The system will generate a list which will be attached with the letters and passed to the officer handling queries at HO. The officer will acknowledge the received letter through the system. They will then verify the information on the query based on the eCitizen Number, NIC number or Application Reference Number. If the writer is not authorized, the system will generate a letter requesting the applicant to personally request for the information. Else, the system will generate a letter to response to the inquirer. The officer should print the letter and attach it with the original query and pass it to the authorized officer for signature. The queries are then returned to the officer responsible for responding the queries. The responses should be handed to the postal unit with a listing to be dispatched by post and update the system once posted. The officer should file the original query together with a copy of the response in Query Reference Number(QRN) sequence.

C. Queries Received by Email
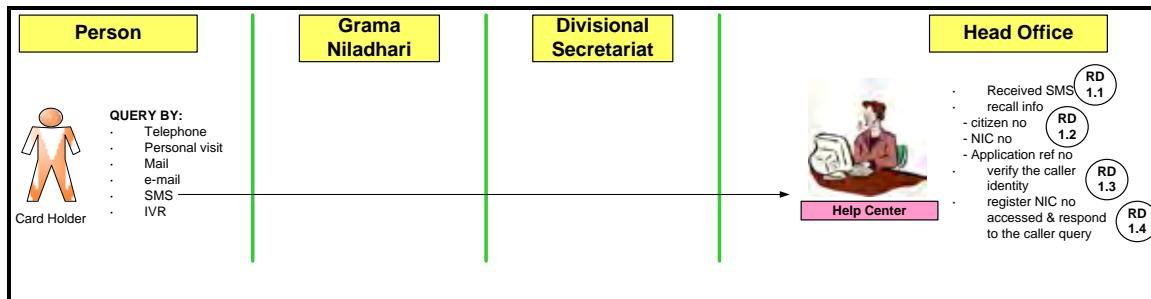
The diagram above shows the process to do queries via email. The query officer who received the email will read and copy the details onto the query form together with the inquirer's email address, name, type of queries, date and time received. The query is the passed to the officer handling queries at HO. The officer will acknowledge the receipt of query through the system. They will then verify the information on the query based on the eCitizen Number, NIC number or Application Reference Number. If the inquirer is not authorized, the system will generate an email requesting the applicant to personally request for the information. Else, the

system will generate an email to response to the inquirer. The responses will be printed and passed to the authorized officer for review and approval.   Once approved, the responses will be passed back to the officer handling queries at HO. The officer will email the response to the inquirer.

D. Queries Received by SMS

The diagram above shows the process of queries done via SMS. When the help center receive a query via SMS, they will record the SMS in the application. The verification process requires any two pieces of information from the eCitizen Number, NIC number or Application reference number. If the caller is authorized, the assistant will register the NIC number and SMS to caller with status. The SMS details will be updated in the system. The inputs, date, time and SMS response will be recorded in the system. This function is available at the Head Office.

E. Queries Received via IVR(Interactive Voice Response system)
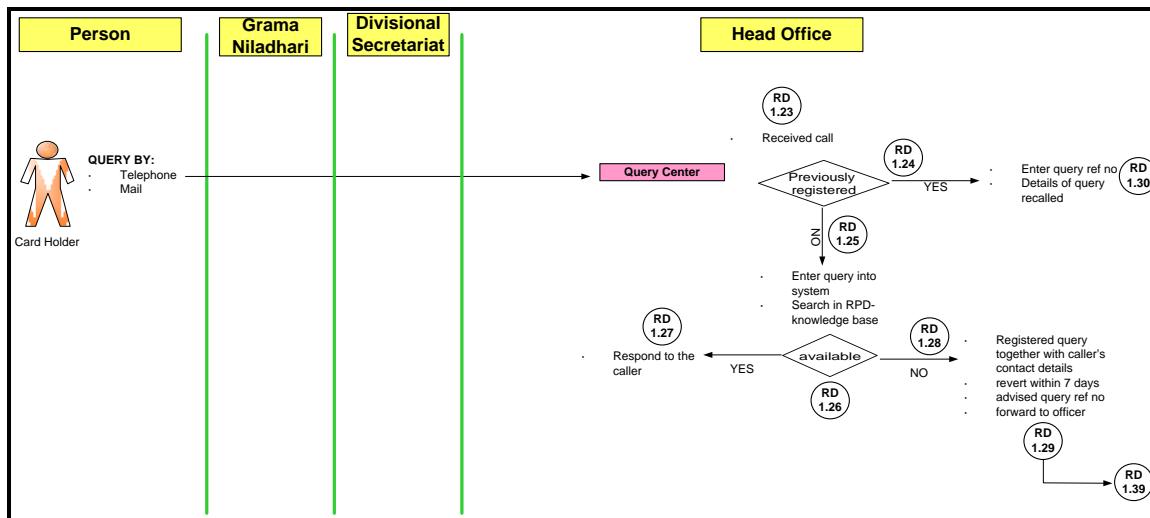
The diagram above shows the process of queries done via Interactive Voice Response (IVR). The verification process requires any two pieces of information from the eCitizen Number, NIC number or Application reference number. If the caller is authorized, the IVR will generate a text to voice status of the card. The inputs,

date, time and IVR response in text will be recorded in the system. This function is available at the Head Office.

3.3.4.2 Queries NOT Related to an Applications and/or Complaints Received by Telephone
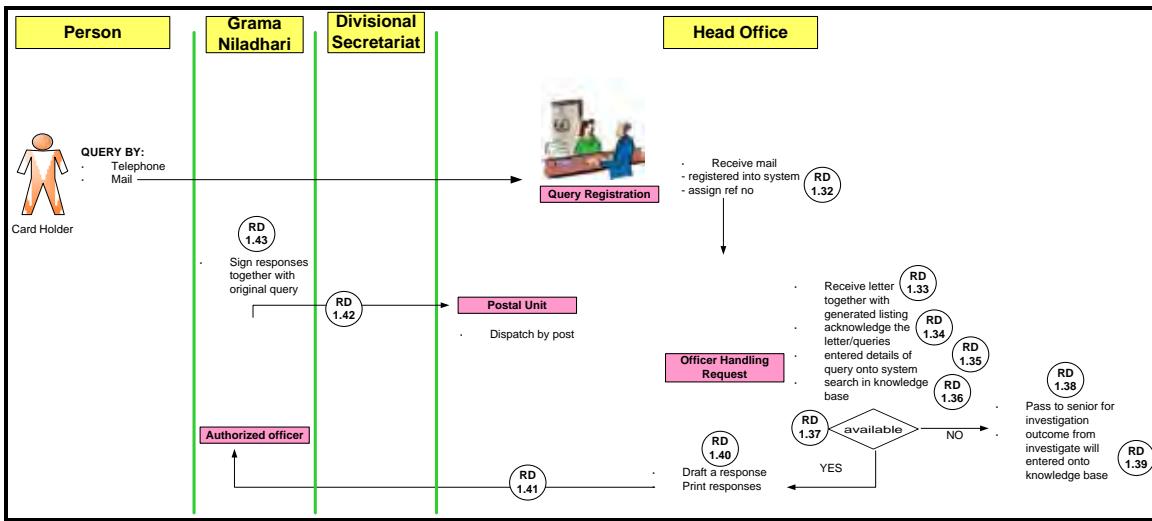
A. Queries Received by Telephone

The diagram above shows the process to do queries not related to an application or complaints via telephone.   When the query center receives a query through telephone, the phone call will be passed to the responsible officer who could speak the preferred language of the caller. If the query is previously registered, the inquirer should provide the query reference number(QRN).   The system will display the details of the query based on the QRN.   Else, the officer will log the query into the system together with selected keywords and searches the RPD-knowledge base. If the information required is available in the knowledgebase, the officer will respond to the inquirer.   If not, the query will be logged into the system and respond to the inquirer within 7 days. The inquirer will be given the Query Reference Number(QRN) for query purposes.   The inquirer's query will be passed to the officer handling queries at HO.

B. Queries Received by Mail

The diagram above shows the process to do queries not related to an application or complaints via mail. The queries will be registered through the system together with a reference number provided by the Postal Division. The system will generate a list that will be attached with the letter and passed to the officer responsible. When the letters are received, the officer will acknowledge through the system and log the queries. Then, the officer will search the knowledgebase system based on the keywords of the queries.
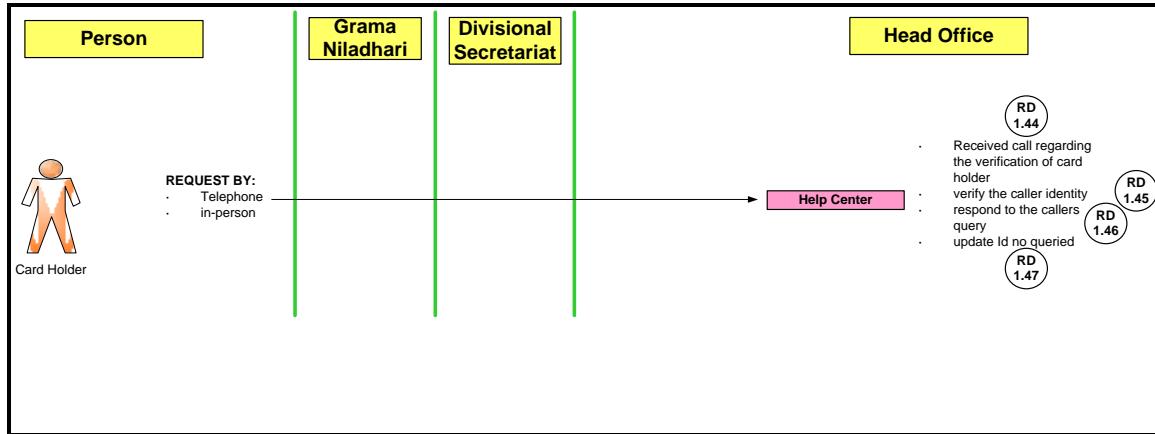
If the search is successful, the officer will respond to the queries in the language preferred by the inquirer. The responses will be printed and attached with the original query and passed to the authorized officer for signature. The queries are then returned to the officer responsible for responding the queries. The responses should be handed to the postal unit with a listing to be dispatched by post and update the system once posted. The officer should file the original query together with a copy of the response in Query Reference Number(QRN) sequence.

Else, the queries will be handed to the senior officer for investigation. The result of the investigation will be updated in the knowledgebase system with identified keywords. The responses will be printed and attached with the original query and passed to the authorized officer for signature. The queries are then returned to the officer responsible for responding the queries. The responses should be handed to the postal unit with a listing to be dispatched by post and update the system once posted. The officer should file the original query together with a copy of the response in Query Reference Number(QRN) sequence.
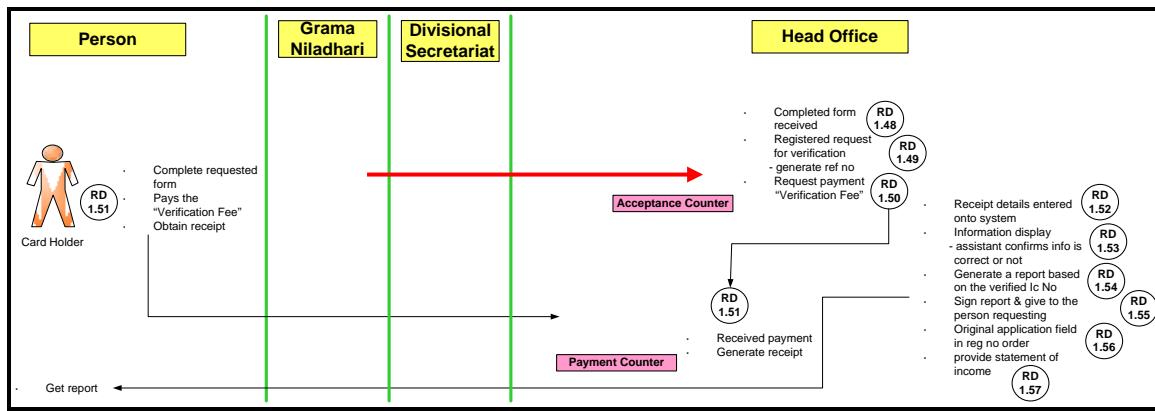
3.3.4.3 Queries Related to Verification of Identity

A. Verification of Information Requested for by Telephone

The diagram above shows the process to do verification of identity via telephone. When a caller request for a verification of Card Holder details, the query will be attended by the help-center. The help-center will verify the identity of the caller based on their NIC number. When the caller is verified, the help-center will inform the status of the Card Holder, either "Valid' or "Invalid". Then, they will update the caller ID Number and details of the caller into the system.

B. Verification of Information Requested for In Person

The diagram above shows the process to do verification of identity done in person. The inquirer is required to fill in a form and hand it over to the RPD Head Office of DS Office. The request will be registered at the Acceptance Counter and a reference number will be generated by the system. The system will generate a payment

request with a "Verification Fee'. After clarifying the NIC number, the inquirer is required to make payment at the payment counter. Once the payment receipt is received, pass it to acceptance counter and the information will be entered into the system. The acceptance counter will verify the information displayed by the system. The system will generate a report with the required details based on the NIC number being verified. Once the report is signed, it will be passed to the inquirer. The officer will file the original application in registration number sequence. A statement of income will be provided to the accounts division for validation of payment purposes.

C. Knowledge base

We will provide a solution for knowledgebase to assist all offices to work efficiently and effectively. The knowledgebase will be able to do searching and retrieval of service knowledge request that will ensure accurate and consistent responses.

D. Online Verification of Information

This solution provide a function to manage online access to the current information on the database. The selected group of institutions are required to do verification of identity. RPD and the selected group will have to sign an agreement. The agreement contains :

- § Information to be used
- § Responsibility of the institution
- § Procedures

Based on the agreement, the system will provide the access to the institutions. The system is able to record the transactions done for future verification. The system will produce a report listing ID cards information accessed online to the RPD on a monthly basis. This report will be verified against the recorded transaction log or audit trail to ensure all accesses are recorded. For unauthorized access, a report will be generated for the Commissioner.

3.3.5　Administration and Maintenance of RPD Processes and Workflows

3.3.5.1　Manage Certifying Officers(CO)

System will manage Certifying Officer (CO). The system will Create, Retrieve, Update and Delete CO details. CO status will be updated such as Applied, Active, Inactive, Suspended and Retired. A status update history and reasons will be maintained. CO Registration application form will be provided. System will provide static information (by way of a web service call) for the RPD website in order that Citizens can search for relevant COs via the RPD website. Payments due to be made by RPD at end of month with copy to RPD accounts division. System will captured individual information such as name, address, contact details, email, attached GN division and DS of each type of CO including signature and photograph. System also captured applicable payment rules for each type of CO. Approval process for COs and active status changes can be performed only by RPD officer approval. This system can be full access at RPD Head office and can be view only at DS Office (online/offline) and Mobile Units.

3.3.5.2　Manage Stakeholders and 3rd Parties

System will manage Stakeholders and 3rd parties. The system will Create, Retrieve, Update and Delete Stakeholders details. CO status will be updated such as Applied, Active, Inactive, Suspended and Retired. A status update history and reasons will be maintained. Web service will be provided and suitable sign-on permission will be allocated. Stakeholder Registration application form will be provided. Payments due to be made by Stakeholder at end of month with copy to RPD accounts division. System will captured institution information such as name, address, contact details, email, information / service requested of each stakeholder. System also captured applicable payment rules for each Stakeholder. Approval process for Stakeholders and active status changes can be performed only by RPD officer approval. This system can be full access at RPD Head office and can be view only by Stakeholders.

3.3.5.3 Manage DS Location

System will manage DS locations. The system will Create, Retrieve, Update and Delete DS Location details. DS status will be updated such as Applied, Active, Inactive, Suspended and Retired. A status update history and reasons will be maintained. System will Allocate or De-allocate COs to DSs (and approved thereof by approved RPD officers). Initial data will be setup, salient data such as Province, District, DS name, contact persons, designations, telephone and email addresses. Static information (by way of a web service call) for the RPD website will be provided in order that Citizens can search for relevant DSs via the RPD website. Cross reference with COs also provided so that citizens can easily find DS and CO data. Status changes can be performed only by RPD officer approval. This system can be full access at RPD Head office and can be view only at DS Office (online/offline) and Mobile Units.

3.3.5.4 Create and Maintain Information Relating to Workflows

System will create and maintain information relating to workflows. Workflows will be defined to cover the full life cycle of the events and items that RPD must action. It will be possible to setup alternate workflows within each process, based on the type of event or related attributes. A workflow definition will consist of the information such as purpose, owner, standard duration, applicable objects/events and task which make up the workflow. Each workflow task will consist of the information such as role/group responsible for executing the task, standard duration, pre-condition / pre-requisites, link to the system function, dependants, next tasks, escalation rules (if the task is not completed within the standard duration) and reversibility. This system will be available at RPD Head office.

3.3.5.5 Create and Maintain Information

System will create and maintain information relating to forms. The application process requires specific forms to be filled in by applicants. These forms will be change according to legislation and the requirements of each application type. System will allows changing the definition of forms as necessary and also associate

key business data items with the form. Special form related validations also be specified. This system will be available at RPD Head office.

3.3.5.6 Workflow : Initiate and Drive the Process Required to Action an Event

System workflow will initiate and drive the process required to action an event. If an event occurs, the process necessary to provide a proper response will be initiated by the system and work assigned to the appropriate officer. System will create a workflow Instance, Create Activated tasks and Assign the first or next Activated task to an appropriate officer. This system will be available at RPD Head office and Divisional Secretariat.

3.3.5.7 Update Progress of Tasks on a Workflow

System will upgrade progress of tasks on a workflow.

i.   System will allow a user to record progress against a specific task. Some standards progress entries will be Started, Waiting (with comment and expected date of recommencement), Completed successfully, Returned (revert to previous task) and Comments (will be supplied).

ii.   Where completion of a task is linked to another system activity, the progress of that task will be captured when the activity is performed.

iii.   This system will be possible to link progress or completion of task to a data attribute. When the progress is updated, the attribute would also be updated.

iv.   Each stage will be completed, or a completed stage will be reversed, unlocking that data so that it will be modified.

v.   A task will have alternative path on completion. If the path is linked to the value of an attribute, it will be routed automatically by the system.

vi.   The approving officer for each stage would also cancel the approval, if no further events have taken place.

vii.   A specific task will be action only by the user or members of the group to which it is assigned. Specific action such as cancellation will be as a restriction. This service will be available to other functions which are designed

to action a specific task. This system will be available at RPD Head office and Divisional Secretariat.

3.3.5.8 Workflow : Assign a Task to User

System workflow will assign a task to user manually. Some of the reason may be because of user to whom it is assigned is not available, the assignment is not correct or the task has not been assigned. Automatic assignment of a task will be take place as soon as a task instance is created. This system will be available at RPD Head office and Divisional Secretariat.

3.3.5.9 Refer a Task to Another User or Group

System will refer a task to another user or group. The system will refer to another user or group when there is activity which needs to be completed by that group, in order to complete the current task. This will be necessary when additional verification or advice is required, and such activities are not part of the standard workflow. The system would create a sub-task to be completed by the assignee. This task can be action in parallel to the parent workflow task after completed in order to complete the parent task. This system will be available at RPD Head office and Divisional Secretariat.

3.3.5.10 Escalate a Task to a Supervisor

System will escalate a task to a supervisor. This is similar to "Referring" a task, except that it does not create a separate workflow or task. The escalation is treated as a secondary assignment and could cover the entire workflow for the workflow-item or just the single task. Escalation normally occurs when a task breaches stipulated constraints of time, process or business practice. A task will be escalated manually by the executor or automatically by the system. This system will be available at RPD Head office and Divisional Secretariat.

3.3.5.11 Retrieve Details for a Business or Data Item

System will retrieve details for a Business or Data Item. Business items will be identified via a search. Only data to which a user has access will be retrieved. There are different subsets of information for each Business Object. It will retrieve the required subsets only, for a given Business item. The examples of Business Objects and Data Subsets are such as Person (Personal data, Family/Relationships, Applications, Payments, Queries and Documents) and Application (Person, Type, Application data, Workflow, History, Queries and Documents). This system will be available at RPD Head office, Divisional Secretariat and Mobile Units.

3.3.6 Operational Access Control Requirement

3.3.6.1 Grant/Take Ownership

Ownership of a data object will be assigned to a specific location and user. Ownership will be granted for a limited period, after which ownership would revert to previous owner. It will be possible for an authorized user to take ownership of a Data item. This is an administrative function, and will be used only if the current owner is unavailable or unable to process a request for ownership. This system will be available at RPD Head office.

3.3.6.2 Off-line Updates

Off-line updates will be carried out when the user does not have direct access to the database, or when the user/location does not have ownership of the Data item. The changes will be stored locally and also submitted to the owner. The owner may implement the change or grant ownership to the originator, to carry out the change. This service is a generic mechanism to ensure consistency. The actual changes will be carried out by the service relevant object. The system will be synchronize and propagate changes to distributed database. This system will be available at RPD Head office.

3.3.6.3 Request Updated Information

The system can request updated information. It will be able to request specific data item to be updated. The requirement is to synchronize the data, a portion of data or a

specific item. This facility can be required at secondary locations. The database will be consistent with the central DB. This system will be available at RPD Head office.

3.3.6.4   Respond to Request for Information

The system will be required to respond other requested which may originate externally. The requested data will be located and packaged as an Electronic Data Message (EDM) and sent to the requester. Security and availability will be verified. This system will be available at RPD Head office.

3.3.6.5   Apply an Update to Information

The system will apply an update. When notified change to a data item or updated information is requested and received, the update will be applied to the local and central databases wherever applicable. This system will be available at RPD Head office and Divisional Secretariat.

3.3.6.6   Identify Active DB Location for a Data Item

The system will identify active DB locations for a data item. It may be necessary to determine who has ownership of a specific data item. There may be more than one owner, if the data item has sub-sets. The relevant locations and users will be identified. This system will be available at RPD Head office.

3.3.6.7   Transaction Logs and Audit Trails

The system will maintain transaction logs and audit trails on all operations irrespective of whether they are carried on local databases or on central databases. Users with appropriate authority will be able to search, retrieve and view audit records. This system will be available at RPD Head office and DS offices.

3.3.7 Electronic Data Messages(EDM)

3.3.7.1 Create a File Containing Data or a Message Required to be Transmitted

System will create a file containing data or a message required to be transmitted. The information will be encrypted and packaged as an Electronic Data Message when information needs to be transmitted electronically between locations. The message will include additional information to indicate the source (user, task), target and method of transmission. The file will be transmitted to the target location, and can be deleted after successful transmission. The electronic form/data would be stored in a predetermined location. This service is a utility, and is not expected to carry out any business level validations. A history off all files generated and transmitted will be maintained. Transmission may be via Messaging. This system will be available at RPD Head office, DS office and Mobile office.

3.3.7.2 Process EDM that May Be Received Directly Through the Internet, E-mail, or Via Off-line Storage Media(Diskette, USB, etc.)

The EDM process maybe received directly through the internet, e-mail, or via off-line storage media (diskette, USB etc). System will decrypt or interpret message and tracking applicable document. Then the message will submit to target function if applicable. System will update the data if authorised, otherwise store as an EDM update and pending confirmation. The data access security will be verified for target as well as source. This system will be available at RPD Head office, DS office and Mobile office.

3.3.8 Printing (Other Than Personalization of ID Cards)

3.3.8.1 General Printing

This system will be able to do the general printing. It will be able to print any information displayed (unless indicated otherwise due to confidentiality or security). Specific print facility will be provided via the eNIC Software System to provide "printer-friendly" output. For reports or other formatted documents, the system will be able to indicate whether pre-printed stationery is available to print accordingly and also able to print a number of copies if required. If common, central printer will be

used and owner of the report will be indicated on the report or on a cover page. For documents which are restricted, any print request will be logged. This system will be available at RPD Head office, DS office and Mobile office.

3.3.8.2 Print Regular Reports

This system will be able to print regular reports. Reports identified during the BPR are listed in Section 12 of the BPR report. It will be able to select a report, and specify the scope criteria for the content and obtain the reports. It will be able to select several reports and specify common scope criteria if applicable. This system will be available at RPD Head office, DS office and Mobile office.

3.3.8.3 General Information Print

This system will be able to print general information. This service will support printing of any information retrieved via the generic Information Retrieval service. This system will be available at RPD Head office, DS office and Mobile office.

3.3.8.4 Print Barcodes

This system will be able to print the bar code labels and on documents as specified. The printing will include the number in human readable form as well. Printing of 1D and 2D barcodes will be supported. This system will be available at RPD Head office, DS office and Mobile office.

3.3.8.5 Print Address Label

This system will be able to print the address labels. This system will be able to select the language for printing or to print in the recipient's preferred language. This system will be available at RPD Head office, DS office and Mobile office.

3.3.8.6 Print Registered Letter Lists

This system will be able to print the registered letter list. It will be able to select (multiple or individual) and generate lists that could be handed over to the post Office. This system will be available at RPD Head office and DS office.

3.3.9   Alerting Services

3.3.9.1 Generate List of Outstanding Registration

This system will generate list of outstanding registrations. This service is secondary service, required for follow up and monitoring. It will compile a list of eligible persons by DS. This system will be available at RPD Head office.

3.3.9.2 Generate Reminders for Tasks

This system will generate reminders for task based on the task definition. All generic task definitions would incorporate the alert event definition which would be applied to all Activated tasks, when this service is executed. All tasks may not require reminders. This system will be available at RPD Head office, DS office and Mobile office.

3.3.9.3 Warning on Delayed Tasks or Workflows

This system will generate warning on delayed tasks or workflows. If any Activated-task or Activated Workflow is not completed within the "expected duration", a warning will be issued to all users associated with the related work-item. In computing the lapsed period, it will correspond to the unit in which the "expected duration" is specified. This system will be available at RPD Head office, DS office and Mobile office.

3.3.9.4 Escalations of Tasks and Workflows

This system will identify Activated-tasks or a Work-item which are delayed beyond the maximum expected duration, and escalate the tasks and workflows via related processes. This system will be available at RPD Head office, DS office and Mobile office.

3.3.9.5 Escalation of Non-action

The system will escalate all Activated-tasks and Works-item which are not action or started. Tasks maybe escalated related processes. When there is no task available for escalation, new "resumed case" will be created in order to force an investigation and proper closure or routing of the item. The threshold for non-action alerts will be defined per Business Object and Task. This system will be available at RPD Head office, DS office and Mobile office.

3.3.9.6 Event Notification

This system will be possible to generate alerts based on events and error conditions detected by other services. Such events will be lodged as alert events by the service which detects it. The event will be removed once the alert has been generated. This system will be available at RPD Head office, DS office and Mobile office.

3.3.10   Use Of Templates And Maintaining Reference Data
3.3.10.1 Maintain Template List

This system allows maintenance of templates. Information stored in the templates is Description, Security, Classification, a link to the template, etc. Different languages are supported for the same template. This function will be available at the RPD Head office.

3.3.10.2 View/List Templates

The templates can be searched. The system allows user to enter search criteria such as name, class or keyword and results are returned in a list format. This function will be available at the RPD Head office, DS Office and Mobile Office.

3.3.10.3 Maintain Codes, Symbols and Reference Data

This solution allows maintenance of codes, symbols and reference data. Functions provided are Add, Change, De-activate(expire) and Supersede Entries. Entries are not allowed to be deleted, instead, entries may be cancelled or de-activated to

prevent future use. Codes will be maintained only at the central database. The secondary databases will receive updates via EDM. This function will be available at the RPD Head office.

3.3.10.4 Event Notification

This function generates documents, merging data to fill in fields and place holder from the database. Any controls and rules regarding security, copies, etc. will be followed. There will be a note indication whether the document requires signature or not. This function will be available at the RPD Head office, DSO and the RPD mobile units.

3.3.11 Information Dissemination

3.3.11.1 RPD Website

The RPD Website will support the business and user functions specified in the IFB document. The website will follow the standards and requirements given in Annexure V : RPD Web Site

3.3.11.2 Information for Approved 3rd Parties and Stakeholders

This solution supports Web Service, where access to the e-NIC system will be available via a Request/Response mechanism.

3.3.11.3 Generate Statistics and Instrumentation Readings

Statistical information is required to monitor operations, performance and load. The format and analysis may change over time. The following types of statistics should be included :

Types of Statistics	Description
Usage	Hits, analyzed by types of users (roles), location, and type of information retrieved.

Workflow	Number of Activated workflows during a given period, average action time. This may be analyzed by task or domain.
Stretch Goals	Reports to monitor stretch goals
Demographics	Application analysis based on information such as sex, occupation. etc.
Operations	Analysis by type of transactions, value (if applicable), volume
Finance	Analyzed by type of transaction, type of funds, and accumulated fund data

Statistics will be generated and stored in a form which facilitates quick retrieval of regular reports, without requiring retrieval and analysis of all data each time. It also allows re-computing the statistics for a specific period, if the monitoring indicators are changed, or new indicators are introduced. The regular generation of statistics will be a scheduled process. It will be possible to extract statistical data for further analysis to support publication of the annual statistics report and other ad hoc reports.

3.3.11.4 MIS Reporting

Reports are required by the management in order to monitor, and to make operational and strategic decisions. The format and analysis may change over time, and it will be possible to create new reports. All MIS reports will comply with the requirements stated in the BPR report.

3.3.12   System Security and Access Control and Audits

3.3.12.1 Domain – Role Based Access Control

Access privileges are granted to a user by assigning Roles and Domain Profiles. Each role describes a position within the functions of the RPD. A user who belongs to more than one role will have the rights of all those roles. Each role will be defined with adequate privileges to carry out the responsibilities assigned to that role. This function is applied through out the system.

3.3.12.2 OS Integrated Security Framework with SSO

Security and access control will be integrated with the relevant operating system access control mechanisms, inclusive of password management and relevant profile management functions. It also provides single sign on (SSO) to access all services with appropriate privileges. This function will be applied throughout the system.

3.3.12.3 Determine Access

Base on security and access privileges, the system will determine whether an operation can be performed. An access request will be made only by the service which would perform the operation. The privileges of the user and the service as well as the current ownership assignment will be considered. This function will be applied throughout the system.

3.3.12.4 Administer Security Network

This function allows creating and maintaining items in the security framework which are Roles, Domains, Domain Profiles and Business Objects. Services and their access tights to Business Objects will be defined. However that would be non-changeable system data. This function will be applied throughout the system.

3.3.12.5 Create Audit Log Entry

Information that will be recorded includes the following:

§   User

- § Action (Service & operation)
- § Subject (Data item actioned — Item identity & Object type).
- § Parameters: (if any). Where several items are actioned, log the filter or scope parameters, and the number of items actioned.
- § Start Date/Time
- § End Date/Time (if known)
- § User Location (if known)
- § DB location

A log entry will be made whenever a service is invoked. An audit log entry cannot be deleted or changed. This will be prevented at the lowest possible level. If the end-time is required, a second log entry will be required. This function will be applied throughout the system.

3.3.12.6 Setup Audit Features

It will be possible to have different activities logged at different levels of detail. It will not be possible to turn off the basic audit trail completely, but the operations which are logged and the detail log should be turned on or off as required.

It is possible to specify additional attributes in a data-item, to be traced. It is be possible to turn off any mandatory tracing which may have been setup at a system level. It is also able to identify a specific item (eg. an application, a user) for logging of all activities. This function is available at RPD HO.

3.3.12.7 Retrieve Audit Trails

Information can be extracted from the log, for a specified period, or relating to a type of business object, or to a specific business item. Search can also be done based on the following attributes :

- § User
- § Workflow item
- § Workflow task
- § Location

An advanced search facility would be provided.

The purge audit log feature will be provided for completeness of the function. Purging the audit log will be restricted, and is archived and stored off-line for query purposes. These functions are available at the RPD HO.

3.3.12.8 User Administration

Administration functions will be provided such as assigning roles and domain profiles, change personal setting and password administration.

3.3.13 Application Interface and Workflow/Process Management

3.3.13.1 Guided Operation and Workflows

The solution will support operational workflows to guide users. On 'On-logging' event, the users will be presented with a list of activated tasks requiring attention. The list will be grouped by several groups such as Type of Work and within the group, it should be sorted by the descending order of the urgency or priority.

The list would contain only activated tasks which are relevant to particular users and their role. This list allows initiation of function and display yhe details of the work item.

The system is able to assign the activated task according to the Pre-Defined workflow. Alerts and reminders for the logged in user will be displayed. Warnings could be generated for the exception. It also facilitates setting of personal reminders (adhoc) on a specific work item. Once a task is completed, the system will navigate users to the next task of that work item automatically. These functions are available throughout the system.

3.3.13.2 Workflow Navigation

It is possible to navigate easily through the workflow. Below are some examples:

i.   For a single event or related work-item such as view history, action due, print related documents. It is desirable to project and view the future tasks in the workflow against a time line.

ii.   For any task within a workflow — view all Activated tasks and related Work items which are in progress, or overdue.

iii.   Bulk operations: View/action several work items. Select the items from a filtered list eg. confirm several items, print documents for several items etc.

iv.   Filter items by progress on the workflow.

   §   Items at a particular point, (ie. - same status)
   §   Outstanding/ late items
   §   Items assigned to a specific person/role/group

v.   Link functions to workflow tasks and action. Where possible, automatically complete the linked function.

This function is available throughout the system.

3.3.13.3 Non Workflow Functions

All functions that are not part of the workflow and which will be used when required, will be accessible via a context based menu, or tool bar, in an easy-to-use manner. This function is available throughout the system.

3.3.13.4 User Interface – Language Requirements

Language requirements will be handled differently for the type of content. Types of content envisaged are as below.

Static: Menu, Labels, forms, messages, help text, tool tips

Data: System Data, Application Data

Reports: Letters, Operational reports, management information

All **Static** information will be available in all Sinhala, Tamil and English languages. All other information would be on all languages of source data. It will be possible to switch to a different language at any time, without changing the default preference.

It is possible to enter **Application Data** in any language: not only in the language of preference or the language in which the form is displayed. This would enable users to enter data in the source language, minimizing transliteration ambiguities, whilst having the form displayed in the language most familiar to them. Therefore, on viewing or action an item, a screen may contain static content in one language, and data in another. Key data can be entered in English as well. (i.e. Name, Address)

System Data Information such as descriptions will be available in all three languages. System generated codes would use English characters and numbers.

Reports and documents will be produced in the recipient's or applicant's language of choice. In order to support this, the data must be available in the required language. Otherwise, the general content of the document would be in the language of choice, and the data, in English, or available language. Public information (e.g. Forms, instructions) will be available in all 3 languages. The solution will be multi-language, supporting Sinhala, Tamil and English. Users will be able to specify their preference, which would be used as the default. It is possible to indicate preferences at location and user levels. Primary and secondary preferences are desirable. If information is not available in the primary language, it will be presented in the secondary (or available) language. Bidder will integrate the 'transliteration' software to the solution proposed by the purchaser.

3.3.13.5 Search Facilities

The system will facilitate searching for information in any language. Search results will be according to the security and accessibility of data to a particular user. Wild Card search is supported. Name search: When searching text such as names, street or place names, the following levels of matching are highly desirable.

- § Match the search text as given, in the given language
- § Match the text phonetically, using sound algorithms.

Item Search: Simple search facilities based on key attributes will be provided for all major entities as well as for workflow tasks. Advanced search facilities will also be provided, where the user can build up a query consisting of several criteria based on any attribute. Name search concepts will be applied to name-like attributes. It is possible to search within the result set to narrow down the results gradually.

3.3.13.6 Data Capture

It is possible to capture data of forms in off-line mode and upload the captured data to the system as a batch process when connectivity is available. When completing a form on-line, if information is already available from a previous application in the database, the system will allow the user to load the existing information to the new form and modify it. This will reduce the data entry process. This function is available throughout the system.

3.3.13.7 Machine Readable Data Interfaces

System is able to interface with any other systems or devices which may be linked to the system. Some of the examples are:

- § Bar-code reader
- § Document scanners
- § Document/image storage and retrieval

This function is available throughout the system.

3.4   Proposed Face Image and Fingerprint Image Matching

Sri Lanka e-NIC System requires a Biometrics Screening and Verification System in order to detect any attempt for multiple ID applications. The Fingerprint 1:N Matching technology shall be adopted for the detection of multiple applications.

HeiTech is pleased to provide the following two sub-systems to meet the above objective by using NEC AFIS technology:

i.   A Centralized Fingerprint Matching System (FMS) to perform high speed 1:N fingerprint matching function to detect duplicated registration in the database, and an 1:1 fingerprint verification function to confirm identity of a person with a known ID.

ii.   A Biometrics enrollment software component with multiple options of fingerprint scanner and digital/web camera for the enrollment of applicant fingerprint and portrait photo. This component is highly recommended to installed to ensure enrollment of quality fingerprint and portrait images which are important to achieve very high matching accuracy

Following section provides a brief overview of NEC Fingerprint Technology, specifically the Automated Fingerprint Identification System (AFIS).

3.4.1   NEC AFIS Fingerprint Search Accuracy

NEC's AFIS unsurpassed fingerprint matching algorithm provides high accuracy and selectivity regardless of the database size and print quality. Utilizing the most robust set of fingerprint features, this enhances significantly the chances for matching a fingerprint against its file print counterpart, regardless of whether the print is distorted or smudged. Many of our installed systems have been upgraded to increase the database capacity beyond the original design size while continuing to pass accuracy and throughput tests.

Automated fingerprint identification is based on the matching of fingerprint minutiae, such as ridge endings and ridge bifurcation. As these minutiae are simple patterns, it normally is quite easy to detect them and identify their relative position and direction as a basis for matching.
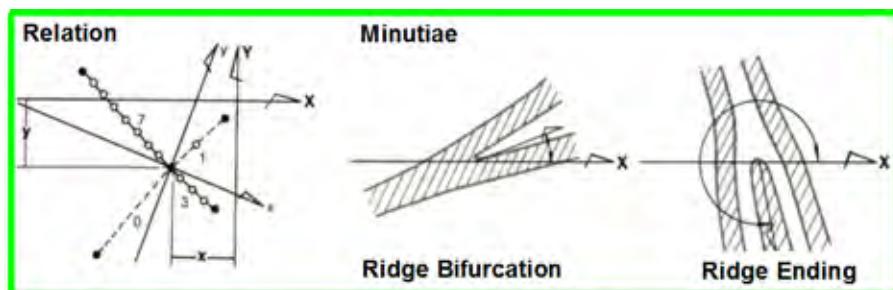
Minutiae position and direction are influenced, however, by image distortion inherent in all fingerprints. This makes position and direction, by themselves, insufficient for the identification of fingerprints and in this regard, many current AFIS systems are found lacking.

As a result, NEC found it necessary to introduce identification factors that are unaffected by distortion and thus consistently establish the relation between the minutiae of a fingerprint. In manual identification, the fingerprint expert uses the number of ridgelines between minutiae for this purpose.

To incorporate these capabilities in an AFIS system, NEC has successfully developed and implemented a relational encoding and matching algorithm. The "relation" is expressed by four ridge-counts. In this algorithm, each ridge count is measured from the concerned characteristic to the closest identical characteristic within its relative quadrant in a local coordinate system.

Using this additional data (relation) significantly enhances the chances for matching a fingerprint against its file print counterpart, regardless of whether the print is distorted or smudged.

Our patented "Ridge Count" detection system provides the most accurate fingerprint matching capability available.

The proof is in actual performance: Our customers identify millions of fingerprints each year. This outstanding system performance is realized and continues even with larger databases. This holds true for our customers whose average database size is triple that of other AFIS vendors. NEC has proven its system's ability to maintain performance even on older generation systems.

FpVTE2003

The most recent international Fingerprint Vendor benchmark test was performed by NIST and is known as FpVTE2003 (see www.fpvte.nist.gov for complete details). The key points of this test are as follows :-

- § The test is conducted by the National Institute of Standards and Technology, a well known and independent testing authority.

- § The test is sponsored and supported by Government and Commercial authorities from all over the world including the US, Europe, etc.

- § While eighteen (18) separate AFIS companies participated, the important fact is that the "big four" namely NEC, Sagem, Cogent and Motorola/Printrak all participated.

- § It should be noted that the purpose of FpVTE2003 was to test accuracy only. It is not a test of matching performance or cost of AFIS systems.

- § The results clearly showed NEC as the world leader in AFIS accuracy plus established the fact that there is significant accuracy differences between the first placed Vendor (NEC) and those that came second and third.

- § In the forty-four (44) large scale AFIS tests, NEC came first in forty (42) of the tests and second in the remaining two (2) tests.

- § In the seven (7) medium scale AFIS tests, NEC came first in six (6) of the tests and second in the remaining one (1) test.

- § NEC's overall accuracy rate for the Large Scale Test of more than one billion fingerprint comparisons was an astonishing 99.68% (error rate of 100% - 99.68% = 0.32%) ! The second placed vendor scored 99.02% (error rate of 0.98%) while the third placed vendor scored 98.78% (error rate = 1.22%).

- § A quick comparison of the error rates between the top three vendors shows that for every one (1) error the NEC algorithm makes, the second placed vendor will make three (3) times as many (0.98% / 0.32% ~ 3 times) while the third placed vendor will make four (4) times as many errors (1.22% / 0.32% ~ 4 times) as the NEC AFIS algorithm.

- § Finally, the NEC's algorithms proved their robustness by coming first in both the poor quality test (NEC maintained the highest accuracy

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amongst all vendors as the fingerprint image quality dropped) as well as the Database Growth Test (NEC's accuracy declined the least of all vendors, even when the database size was increased by a factor of one hundred fold).

In addition to the FpVTE 2003, NEC also participated the Slap Fingerprint Segmentation Evaluation 2004 (SlagSeg04, NIST IR 7209), conducted by National Institute of Standard and Technology (NIST).

SlapSeg04

The Slap Fingerprint Segmentation Evaluation 2004 (SlapSeg04) was conducted to assess the accuracy of algorithms used to segment slap (plain) fingerprint images into individual fingerprint images. Ten companies submitted thirteen algorithms for review and NEC scored at the top of each test category.

NEC's slap segmentation algorithm achieved 96.8% correct segmentation rate when three or more highly matchable fingerprints (and correctly identified finger positions) are measured. Additionally, NEC's slap segmentation algorithm gave the best accuracy on hand and finger position identification rate for slaps with unknown hand type. NEC can correctly identify hand and finger position 99.8%.

Accuracy of slap segmentation has immediate benefit in conducting the finger sequence check for livescan submissions and building slap prints database without operator intervention. SlapSeg04 technology has been already implemented at several NEC AFIS installations.

NEC AFIS is Open Standard

NEC strives for standard compliance by quickly adopting NIST published standards. In the early 1990's, NEC was the first AFIS vendors to embrace NIST ITL standard.

Compliant Fingerprint Standard

ANSI/NIST-ITL-1a-2000	American International Standards for Information systems – data format for the interchange of fingerprint, facial, scar mark and tattoo information.

CJIS-RS-0010 (EFTS)	Electronic Fingerprint Transmission Specifications
CJIS-RS-0010 (IQS-Appendix F and G)	IAFIS Image Quality Specifications (Appendix F) Interim IAFIS Image Quality Specifications for scanners
FBI Compliant WSQ Compression/Decompression	FBI's Wavelet Scalar Quantization Specifications for Grayscale Fingerprint Image Compression.

3.4.2 Proposed NEC AFIS System Configurations
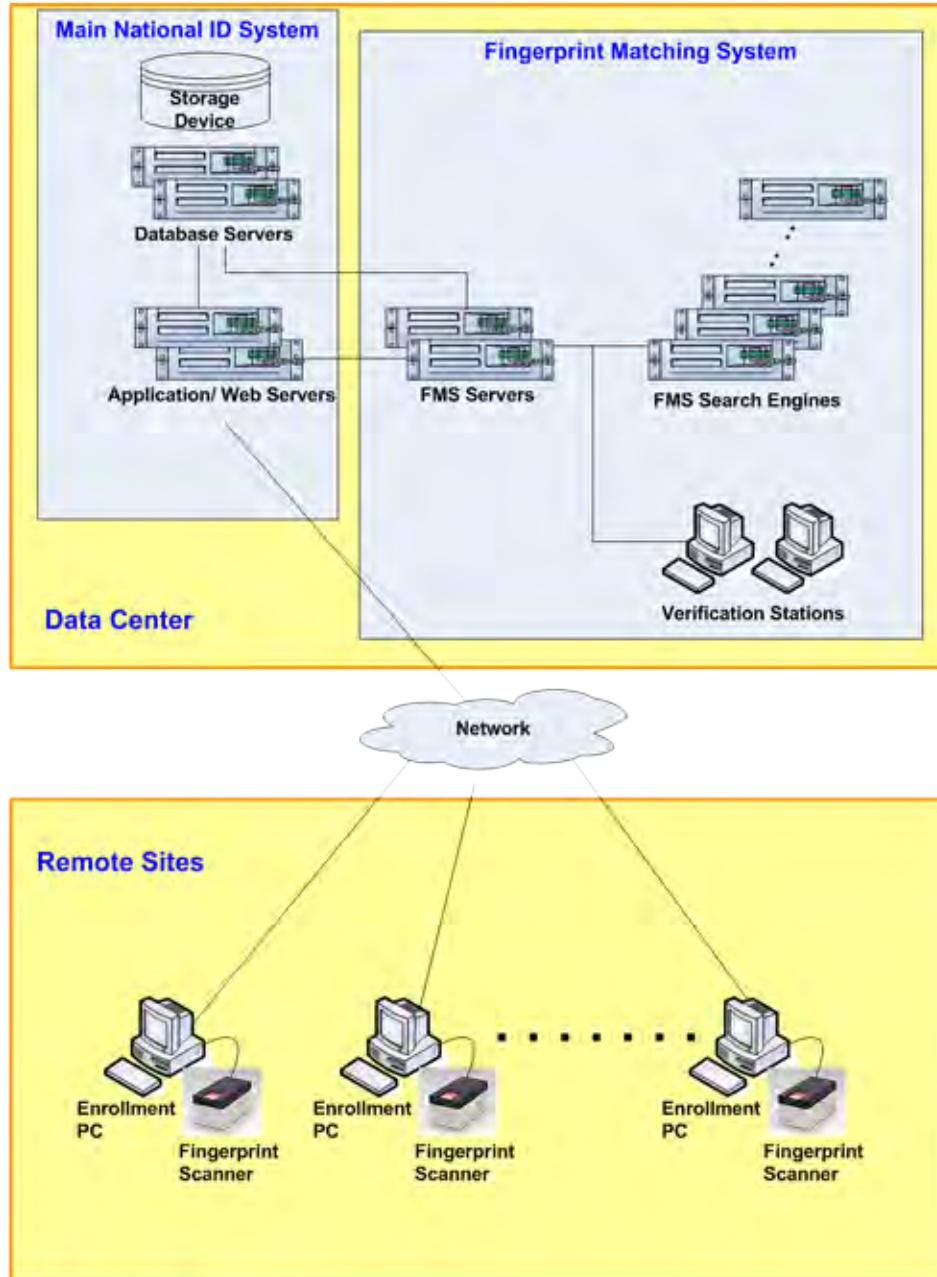
Figure 3.10: Proposed Fingerprint System.

As illustrated in Figure above, the proposed Fingerprint System is composed of two major sub-systems, a Centralized Fingerprint Matching System and Biometrics Enrollment Component.

The Centralized Fingerprint Matching System provides the back-end fingerprint 1:1 and 1:N matching functions at Data Center.

The Fingerprint Enrollment Component is a component to be integrated into the front-end e-NIC Obtaining Application and enrollment of fingerprint and portrait photo images.

Both sub-systems shall be integrated with the main e-NIC System for applying application registration and transaction processing using the same database server with the main e-NIC System for storage and access of biometrics data (fingerprint and photo images) and transaction data. The proposed system also will reside on the existing network at Head Office and DS.

Generally, the e-NIC System will send the applicant's fingerprint images to the Fingerprint Matching System (FMS) to request for 1:1 or 1:N matching via an XML/Web Services interface.   The matching result will be returned to e-NIC System in online mode or batch mode. Section below describes more details about NEC AFIS solutions and functions.

Centralized Fingerprint Matching System (FMS)

FMS is a software-based high speed fingerprint matching system based on highly accurate and reliable NEC fingerprint matching technology.

FMS utilizes array of industry standard servers for parallel matching processing to achieve very high matching speed at lower cost, and assure future upgrade path and maintainability since no proprietary hardware is used. The Fingerprint Matching System is composed of following hardware components:

> § FMS server
> § FMS Search Engine
> § Verification Station

FMS Server

The FMS Server performs the functions for:

> § Search Database storage and management
> § Manage the Search Engines configuration, status and error recovery

§   Interface to the main e-NIC System for transaction request, processing and response the processing results.

§   Search jobs supervision and search results dispatching

§   Search Reports Generation

§   System Monitoring

FMS Server can be configured with multiple servers in active mode to achieve high system availability and high scalability. In this project, two units of FMS Servers are proposed.

FMS Search Engine

FMS Search Engine is a software based fingerprint matching engine running on Windows Server. An array of high performance blade servers are used for parallel processing to achieve very high 1:N fingerprint matching capacity to meet the daily fingerprint screening requirement. The units being proposed is base on the number of record required to process.

Verification Station

The Verification Station is used for visual verification of fingerprint hit cases to confirm whether a hit case is a genuine attempt of multiple ID application, or it could be just false hit due similarity in two applicants' fingerprint.

Verification Station provides following functions and features for handling of 1:N fingerprint search jobs and hit cases:

§   Monitoring of fingerprint search jobs processing status

§   Auto-routing of fingerprint hit cases for visual verification and inspection

§   User friendly and easy to use User Interfaces for quick browsing of hit candidates

§   Side-by-Side display of photo and fingerprint to allow easy comparison and verification of applicant and hit candidate identity.

§   Fingerprint analysis tool for detailed inspection of fingerprint ridges and minutia points.

§ Generation of reports for duplicates cases, include printing of fingerprint images.

§ Verification result entry and automated routing of transaction to next step of transaction workflow.

Biometric Enrollment Component

The proposed Biometrics Enrollment Component is a modular package for enrollment of biometrics data such as fingerprint, photograph, signature specimen, etc. The packaged include the Software Development ToolKit for Biometrics Software Development (SPID) for seamless integration and for rapid biometrics application software development. SPID handle the biometrics functions such as fingerprint and facial image capture, image quality control, feature data extraction, and international data format compliant, hardware device independent. This software Conforms to NIST and ICAO standards for biometric data format and will made automated facial image tokenization to meet ICAO Standard Specification in future implementation.

The proposed Fingerprint Matching System shall share the same server but different database partition within the main e-NIC System for storage and access of biometrics data (fingerprint and photo images) and transaction data.

3.4.3   Integration AFIS with Main National ID System

The proposed Fingerprint Matching System (FMS) shall be integrated with the main e-NIC System to provide two major functions:

i.   1:N Fingerprint Search against entire fingerprint database to detect duplicate registration records.

ii.   1:1 Verification of Applicant Identity

1:N Fingerprint Search

This function search against the entire fingerprint database to detect duplicate registration records. The proposed workflow is describe below.

i.   e-NIC System or the capturing station submit the applicant ID and fingerprint images to FMS Server via Web Services or API provided by FMS.

ii.   FMS Server registers the search request in the FMS Search Job Queue.

iii.   Two operation modes, online and batch can be supported. In online mode, National ID System will wait for the search result to be returned upon submission of search request. In Batch mode, e-NIC System just places the search job in FMS Server without waiting for the search results to be returned.

iv.   FMS Server dispatch the search jobs to FMS Search Engines to perform 1:N Search. A priority can be assigned to each search job such that Express Applications will be processed first to meet the stipulated response time requirement.

v.   When there is fingerprint hit detected, the hit case will be routed to Verification Station for visual verification.

vi.   This is a configurable process for which the hit case may also be returned to the ID System without visual verification. Alternative, the routing decision can also be configured based on percentage of similarity between two fingerprint images.

vii.   In online mode, FMS Server will return the search result to the calling party when the 1:N Search is completed.

viii. In Batch mode, National ID System will need to send request to FMS Server to retrieve the search result via Web Services or API provided by FMS.

1:1 Verification of Applicant Identity

i.   National ID System or the Registration Station send the applicant ID and fingerprint images (or minutia data if use SPID for enrollment) to FMS Server via Web Services or API provided by FMS.

ii.   FMS Server performs 1:1 fingerprint matching by matching the input fingerprint against the registered fingerprint of the Applicant in the database.

iii. FMS Server returns the matching result (pass or fail) to the calling party in online mode.

3.4.4   System Capacity and Performance

RPD required the AFIS solution must used one rolled base fingerprint in the matching process. Our solution will meet this requirement and we are proposing this one rolled base fingerprint. However due to major concern in using one rolled base we are highlighting the rolled base capture and two flat fingerprints capture for an alternative solution to RPD for consideration. There is financial impact to either one option especially the devices capture, server and storage as it's require differences quantity, storage sizing, software license and new capture device.

3.4.4.1 One rolled fingerprint capture and matching

Our Assumption;

i. Number of ID application per year is 2.4 million for the 7 years

ii. Number of ID application per day during peak period is 10,000 applications per day.

iii. 1 rolled fingerprint are captured per ID applicant.

iv. Initial database has no records.

v. Maximum database size is 16.8 million records (16.8 million fingerprints) in 7 years time.

vi. 1:N Fingerprint Search for normal service transaction shall be completed within 20 hours as the approvals are centralized. A 180 seconds response time is not required unless the approval is at the front end.

vii. One finger will be used for 1:N fingerprint search

viii. All transaction will be matched against the entire registered fingerprint database.   No fingerprint classification or database segmentation/filtering shall be used.

The following table shows the requirement on fingerprint matching capacity over 7 years for above search method.

	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7
Database Capacity (Records)	2.4 million	4.8 million	7.2 million	9.6 million	12 million	14.4 million	16.8 million
Number of FMS Search Engines required using one rolled based fingerprint (4xQuad core)	7	14	19	26	31	38	43

3.4.4.2 Two fingerprint capture and matching

Our Assumption;

i.   Number of ID application per year is 2.4 million for the 7 years

ii.   Number of ID application per day during peak period is 10,000 applications per day.

iii.   Maximum of two Flat fingerprints are captured per ID applicant.

iv.   Initial database has no records.

v.   Maximum database size is 16.8 million records or 37.6 million record (12 million as required in the tender and 30% growth in 7 years time).

vi.   1:N Fingerprint Search for normal service transaction shall be completed in 20 hours. A 180 seconds response time is not required unless the approval is at the front end.

vii.   Maximum two fingers will be used for 1:N fingerprint search

viii.   All transaction will be matched against the entire registered fingerprint database.   No fingerprint classification or database segmentation/filtering shall be used.

The following table shows the requirement on fingerprint matching capacity over 7 years for above two search method.

	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7
Database Capacity (Records)	2.4 million	4.8 million	7.2 million	9.6 million	12 million	14.4 million	16.8 million
Number of FMS Search Engines required using two flat fingerprint (4xQuad core)	10	19	28	38	47	55	65

3.4.5   Rationale for Two Flat fingerprints instead of One Rolled Fingerprint

The main reasons for proposing two flat fingerprints instead of one rolled fingerprint is:

§   Accuracy

§   Effective use of resources

§   Operational Issues

Below shows the accuracy statistics between a single flat fingerprint and two flat fingerprints. As a general guide line, we use the following data with FRR fixed at 0.1%.

Enrolled Fingerprint	FAR in %	FAR in Frequency of False Hit	Est. False Hits per day based on 10,000 transaction and 10 million DB Records
Single Flat Print	0.000025%	1 in 4 million matches	25,000
Two Flat Prints	0.000001%	1 in 100 million matches	1,000
Single Rolled Print (assume 50% higher accuracy)	0.0000125	1 in 8 million	12,500

Note:

*"**False Acceptance Rate (FAR)** which is the probability that an identity fraudster will be accepted by the system*
***False Rejection Rate (FRR)** which is the probability that a legitimate person will be rejected by the system.*

By adjusting the threshold of acceptance, the FAR can be lowered at the expense of the FRR, and vice versa. In a highly confidential application like the National ID program, a higher FRR and a lower FAR are required. In this example we used FAR of 0.000001% at a FRR of 0.1% for 2 flat print matching. In this context, FAR or False Unmatched of 0.000001% means that there will be a random one falsely accepted fraudulent application for every 100 million record matches. It is important to note that FAR and FRR rates and the accuracy of the system are a direct result of the quality of the fingerprint of the individual user. Actual FAR and FRR figures may differ due to poor quality of the captured fingerprint images".

As seen above, the **accuracy of two flat prints is much higher than a single flat print**. Assuming if a rolled fingerprint is 50% more accurate than a single flat print, two flat prints matching is still much more superior in accuracy.

In terms of resources, a rolled fingerprint will take up 50% more matching resources compared to a flat fingerprint while two flat fingerprints will take up 100% more resources.

While two **flat fingerprint's resources is double that of single rolled fingerprint, its matching accuracy is more than 12 times better**.

Operationally, it is **more difficult to capture a good rolled fingerprint compared to a flat fingerprint**. The officer administering the fingerprint capture will need to be adequately trained. If rolled fingerprint is not captured properly, the 50% increase in accuracy will be impacted resulting in a less accurate system.

Those matches that returns a high score (high probability of a match) would be consolidated in a Hit list (or False Hits). Human intervention will be required to determine whether it's a real hit or false hit. Real hit means an exact match or duplicate found. Using the same illustration, if we go with single flat print, the hit list would be 25x as long as that of 2-finger. In another words, if it takes 1 operator to clear 1,000 record Hit list per day (2-finger scenario), you would require 25 operators to do the hit list management for 1-finger. **Operationally, 1-finger is not desirable.**

3.5   Proposed RPD Data Center

The proposal Data Center in our proposal will have the most advance technologies for highly secure facility (physically and logically), which guarantees the integrity and securities of data. The Data Center will enable the consolidation of the critical computing resources in controlled environments, under centralized management, that will make it possible for operation in line with needs of the mission critical operation. The Data Center design is based on the high availability requirement and also in mission critical operation where the systems must be operational at all times (24 hours x 365 days). High availability, high securities and no shutdown of power supply to the Data Center for maintenance or addition of computer equipment can be tolerated.

3.5.1   Infrastructure

We have carefully proposed the specification base on our site visit and propose accordingly to the requirement. The construct, built, implementation, testing & commissioning of Data Center at e-NIC facility should consist of the following. They are:

- § Data Centre Power and Data Cabling
- § Backup Power Supply
- § Monitoring and Equipment Room
- § Security Systems

3.5.1.1 Data Centre Power and Data Cabling

Data Center Power

In Data Centre setup, electrical components such as Main Switchboard (MSB), UPS Output DB and cables are among the most important and crucial elements that require thorough care and considerations for their proper technical implementation, supervision works and safety concern. For these reasons, there is technical expertise within the organisation with recognised Authorities' certification and licence to properly carry out any stringent electrical distribution, installation, set-

up, testing and commissioning for mission critical electrical application by adopting the best practices of IEEE electrical code and standard of installation procedures.

The Data Centre electrical distribution is different from that of a normal office. Our corporate approach is always to supply and install higher quality equipment and components to maintain the highest availability and safety by avoiding any triggering effects of any unnecessary earth fault and leakage current that can cause upstream tripping and long blackout duration. They will also be of ferrous metal type, painted with rust inhibiting self-etching primer, with 2 coats of glass enamel, epoxy paint.

They will also be incorporated with MCCB breakers, Earth Fault Leakage Relays, metering devices, phase indicators, proper labelling of bolted cable lugs and transparent fibre panels for safety and maintenance purposes.

All outgoing power cables for critical equipment will be terminated with single circuit and each individual circuit will be protected with earth fault protection. When there is an earth fault condition, it will only trip the affected circuit without tripping the rest of the circuit, thus maximizing the uptime of the Data Centre.

Data Centre requires a reliable power source that is free from interference or disturbance. The proposed electrical system will provide redundant power supply to the IT equipment for high availability and to avoid single point of failure in the Data Centre. The UPS system will remove surges, electrical noise and harmonics and also Stan by Generator Set will automatically take on the load and work parallel to the UPS.

Data Cabling

Data Cabling for RPD Data Center provides the information design DIGILink Certified Cabling System. Designers with a working knowledge of structured cabling systems design intend the Design Guidelines for use. The Design Guidelines are part of a series of documents supporting the design, installation, and use of a DIGILink Certified Cabling System.

We offers full service VOICE, DATA, and VIDEO structured cabling design and turnkey installations, including design and installation. We provide technologically advanced and best in class cabling solutions. Category 5e UTP cable will be used to install at RPD Data Center and using 24 port patch panel (Rack end)and ABS molded dual face plate information outlet with RJ 45 module (TIA/EIA – 568b).Three numbers of 44U (800 x800 x2200mm) free standing locally assembled black color powder coated Zinc enclosure compliance to IP 54 with fan plate and 4 way power bar. Active networks components (networks switches) provided will be 10/100 Mbps D-Link DES 3026 24+ 2 Giga fiber L2 manageable switch Giga transceiver. These will placed inside 44U racks and will interconnect OMR ,RPD,Data Center and Printing Area

Testing, Certification and Acceptance

All installed cabling (UTP), interconnection hardware (patch panels) and patch cords shall be tested   accordingly, subsequently certified to industry accepted testers and fully documented. Testing and certification are included in our cable installation service but we also provide cable testing and certification service for existing cabling infrastructure. All 4 pair UTP cabling shall be tested and certified to Category 5e industry standards.

3.5.1.2   Data Centre Backup Power Supply

Uninterruptible Power Supply Systems (UPS)

The proposed UPS System which is part of the electrical design for the Data Centre comes complete with Internal and External Maintenance Bypass, such that on normal operation the loads are supplied from UPS.

The UPS units will be of on-line, double conversion type.   Active Input Harmonic Filter will also be added in to reduce the harmonics feedback.   The battery back-up time for UPS shall be sized at rated 60kVA for 10 minutes. The sizing of the back-up time is to enable the Data Centre to have sufficient time to power down the IT equipment in the event of total power failure. One units of Powerware 9390 - 60KVA UPS have been proposed with autonomy time of 10 minutes, and include batteries of 5 years design life span. The proposed Powerware 9390 UPS units are manufactured in USA by Eaton Powerware.

Generator Set

We proposed a 100KVA Standby Generator set, based on the full load UPS and Precision A/C power calculation requirement to provide continuously auxiliary power supply upon utility outage. The concept is whereby upon power failure the UPS is automatically using it's own battery backup to provide power to the load without interruption and the genset only be started operation in within 10 seconds or less and to take over as a secondary power provider to the UPS and precision A/C. With the genset in place, there is no need to auto-shutdown all the operation servers while power blackout and the UPS battery life span could be in service for a longer time. The Genset is recommended to be located at ground level with Proof Canopy .One unit of Kiloskar Green Generator Set will proposed to back up power for Data Centre, Operation Office and Card Production Centre .

3.5.1.3 Data Center (Civil Works)

The purpose of designing a Data Centre at the Department of Registration of Persons by the Ministry of Internal Administration is an initiative by the GoSL under the IT enable provides adequate capacity and higher service in issuing the National Identity Card for the masses. Factors that we considered included accessibility , cost effectiveness, location and efficient use of space. Our intent was to preserve the existing space of the Department and to design the complex in such manner that it will reflect the modern feel and look. The proposed eNIC Data Centre will be housed mainly at the present premises of the Department of Registration of Persons at Jawatta Road , Colombo 5.Sri Langka .

The Technical drawing will shown as per attachment at Section 9: Annexure

Raised Flooring System and Floor Insulation

The new Raised Flooring System covers the floor system, floor insulation and air discharge panels. The proposed floor system will have rigid-grid framework formed by galvanised stringers and pedestal and assembles carefully bolted at 600mm centers.

The modular square panels will be supported equally along the edges of the rigid- grid. The stringers will also ground to the computer earth. The modular square panel will provide a high-pressure laminated tile (anti-static) as floor finish.

The floor system when completed will be sturdy, rigid and free of rattles and other vibrations. The raised floor height will be 300mm. The floor will achieve an overall flatness of within ± 2mm over a 3m span. It will be capable of accepting a concentrated load of 4.5 KN/sq.in and a uniform distributed load of 13KN/m^2 to give a deflection not exceeding 2.5mm.

The 25mm polyethylene insulation layer of factory manufactured sections in 600mm x 600mm modules will be evenly applied to the floor and side walls of the underfloor of the data center. With the polyethylene insulation, there will not be any condensation due to low temperature of air-conditioning system.

Air Conditioning System (Precision Air-Conditioning System)

The process cooling or close control air-conditioning is recommended to be used for computer rooms/data center equipped with servers that consist of sensitive microchips and electronic components which require extremely low air-conditioning temperature e.g.: 22 °c ± 2°c, low humidity 50% relative humidity of ± 5% and low dust condition (by introducing positive fresh air).

According to engineering studies, the lifespan of the microchips and sensitive electronic components would be prolonged if the room temperature can be controlled

with low temperature, low humidity and low dust environment. Thus, normal comfort air-cond such as fan-coil unit is not recommended for data center application.

The process cooling system for Data Centre is designed for duty and standby operation (redundancy) capable of operating 24 hours and maintaining a specific room temperature of 22^{0}C at 50% R.H in Data Centre.

The air-cooled process cooling consists of indoor precision air conditioning unit and outdoor air-cooled condenser units. The refrigerant liquid and copper suction pipes shall be running to and fro between indoor and outdoor units.

Air cooled precision air-condition units

The air cooled precision air-condition units shall be self-contained factory assembled unit and come complete with factory supplied full assembly of cooling coils, air filters, electric reheat, high static fans, fan motor, compressors, microprocessor based

controller which at stated conditions shall provide sensible cooling above 90% of sensible heat ratio. The design of the unit shall have a dual refrigeration circuit.

The entire process cooling air-conditioning system can support terminal port for high level interface to existing building BAS and environmental monitoring system. In our study, we will allocate 2 unit Precision Air Cond 10 KVA and will rotate every 6 hour to cater 24 hour humidity and environmental at Data Center

3.5.1.4 Security System (Physical)

In any sensitive data collection procedure the data center has to be monitored for illegal intrusions and entry , to counter this issue we have also recommended the use of CCTV cameras, Access Control Systems, and Fire Fighting for Data Centre

CCTV

The scope of work for CCTV includes in Data Center the supply, installation, testing and commissioning of a complete of 3 units CCTV system together with monitoring control system, recording and surveillance. All of the CCTV System equipment and application software installation in Data Center will be done by Certified Installers and Integrators of the proposed manufacturer.
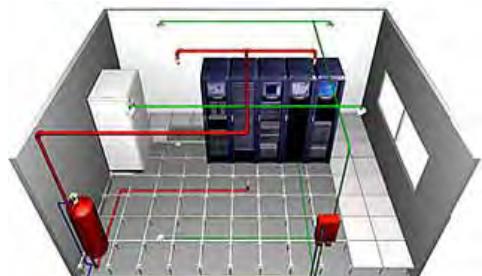
Access Control System

We proposed 2 units Smartkey Biometric Access System at the Data Centre for restricted access monitoring and control for staff, visitors and to prevent unauthorised intrusion. The proposed biometric security system included capacitive sensor in CMOS technology. Mechanical resistance is hard surface provided protection against chemical resistance is enhanced resistance against most liquids, gases, sweat. Biometric built-in card reader for both fingerprint and EM cards.

Fire Protection

We have proposed the FM 200 Fire Prevention and Suppression System for the Data Centre. The FM 200 Fire Suppression system is designed using software calculation on the concept configuration based on the volumes of the rooms, hydraulic pressures applied in the distance piping and discharge time requirement. Each individual room in the Data Centre is protected by an independent discharge system that is not shared with other rooms. The gas cylinders can be extended out with schedule 40 piping & detection system to the hazard areas. The minimum time of discharging shall be less than 10s and the fully completed extinguishing time is less than 30s upon gas discharge activation. FM 200 systems combine active fire protection, the benefits of clean agent Systems and people-safe, environmentally friendly performance. It penetrates every nook and cranny of the protected facility as it snuffs out fires in seconds. It minimizes fire-related downtime, leaving no residue to damage sensitive electronic equipment,
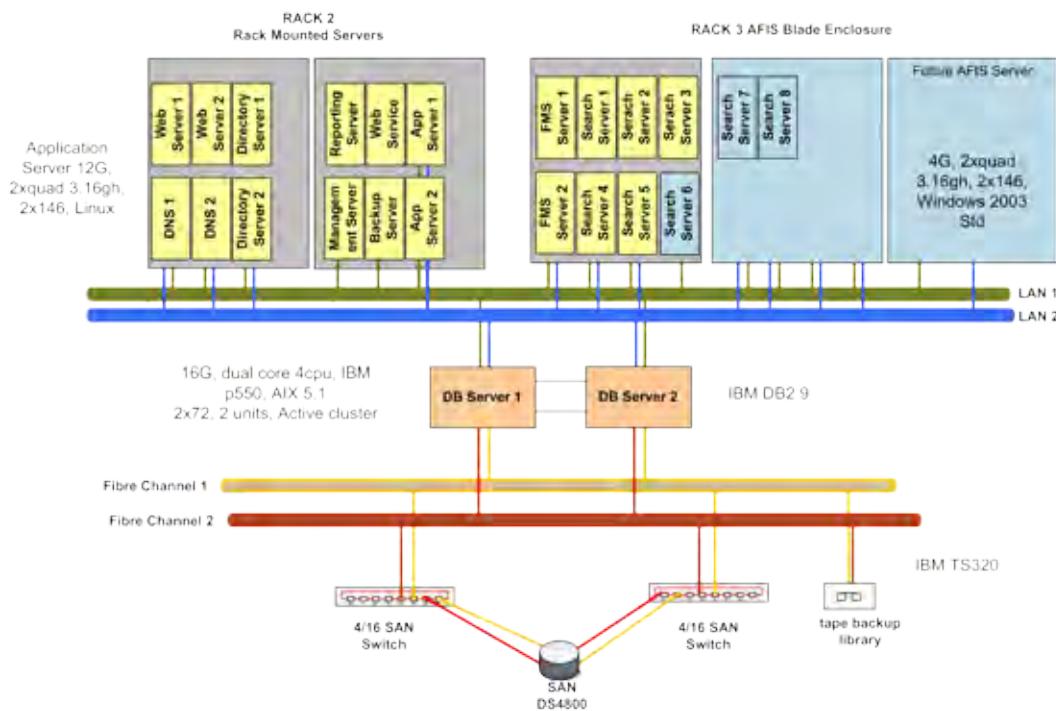
vital software or irreplaceable objects. There's no time consuming, expensive cleanup, and you can get your business operations back on line faster. FM-200 is safe for people: It is non-toxic when used in accordance with NFPA Standard 2001. It causes no breathing problems for people and won't obscure vision in an emergency situation. FM 200 is Environmentally Friendly: FM200 is the most versatile and tested clean agent in the market, has zero Ozone Depletion Potential (ODP), a low atmospheric lifetime (36.5 years) and no Environmental Protection Agency usage restrictions. FM 200 is Tested and Accepted by Underwriters Laboratories, Factory Mutual and the National Fire Protection Association (2001 Standard) and most global approval authorities.

3.5.2   Proposed Hardware

We propose a complete solution to run e-NIC application at new Data Centre at RPD Head Office. The solution is base from IBM Server technology which includes the blade setup, rack mounted, cluster setup, redundant components and SAN technology. This combination of solution will provide high availability, easy management and achieve performance. Following diagram show server required to run e-NIC applications.
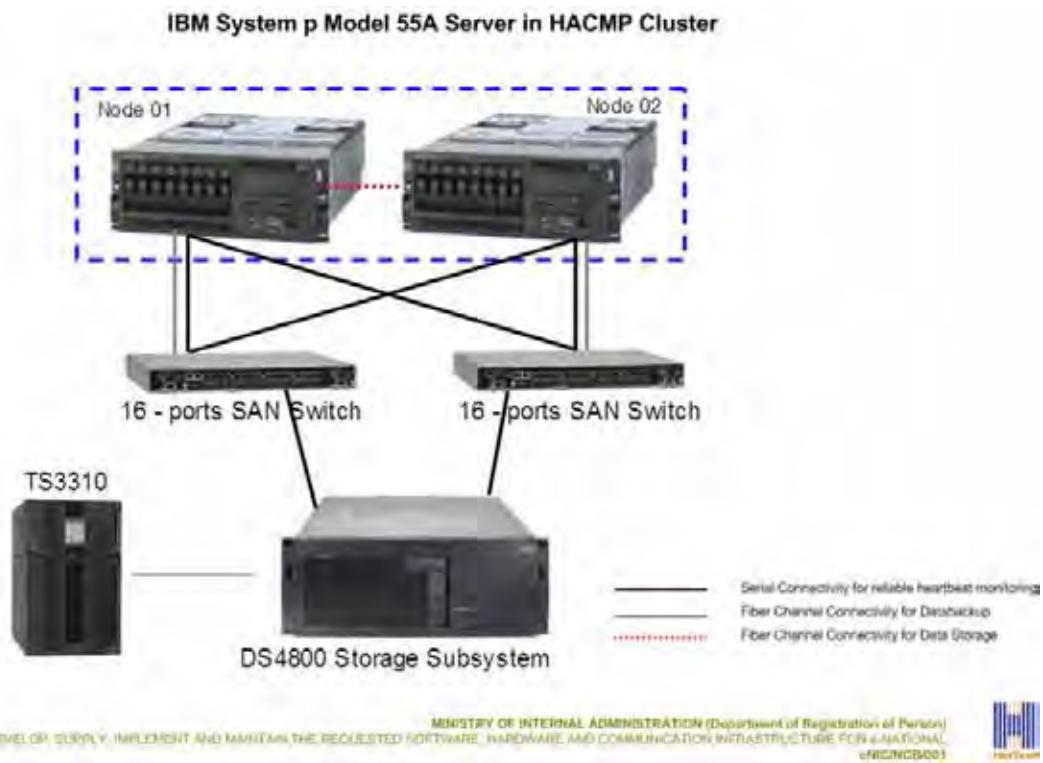
Our proposed data center server as previous section illustrated the redundant items and cluster environment required at Database server, Application Server, Web Server, Directory Server, LAN Network switch, and SAN Fiber Channel and Switch.

Base on the above setup, in summary all the critical component will be configure for high availability and scalability;

§ Database Sever will be configure to have redundant power supply, network card, and active-active HACM setup. Its will have automatic failover and recovery at operating system and hardware level.

§ Application Server will have two units with redundant components and load balancing futures.

§ LAN switch will have redundant and usage of 1000Mbps oe Level 2 network setup.

§ SAN storage will have hot swap disk, redundant power supply, double fiber channel (FC)

§ Tape backup library will be use to auto backup daily database to external tape and save at recovery center.

§ All servers are scalable for more CPU, memory, disk and IO components.

3.5.2.1 Database Cluster and Storage Subsystem

IBM System p Model 55A Server in HACMP Cluster

The above Database Failover Cluster is proposed to ensure continuous availability of the DB2 Database. The cluster includes the following,

- § IBM System p Model 55A servers in a HACMP Cluster
- § 16 port SAN Switches for the Fiber Channel connectivity with Storage Subsystem
- § DS4800 Storage Subsystem

The 02 Nodes of Database servers are in a HACMP (High Availability Cluster - Multi Processing) in an Active - Active cluster. Since both server are active its can be use as load balance and any one down there is no impact to the application. The downtime will be minimize and the data will be available at most of time. HACMP via its reliable monitoring, failure detection and automatic recovery of the database provides high availability which in turn can sure better service levels to the citizens in this project. The HACMP solution can also virtually eliminate planned outages by transferring users, applications and data to backup systems during scheduled maintenance.

Web Server or Load Balancer in Websphere Application Server - Network Deployment Cluster. Model x3550

Application Server in in Websphere Application Server - Network Deployment Cluster.
Model x3850M2

Directory in Websphere Application Server - Network Deployment Cluster.Server Model x3850M2

The above servers has been included in a Websphere Application Server - Network Deployment Server cluster for high availability and fault tolerance. WebSphere Application Server Network Deployment distributes workloads across multiple servers through sophisticated load-balancing and clustering capabilities, including automatic failover capability and content-based routing to deliver more-effective session management and enhanced, edge-based caching capabilities.

Table below are the summary our proposed server for above requirements.

Intel Servers	Qty	Model	High Availability Setup
DNS Server	2	x3350	-
Web Server or Load Balancer.	2	x3550	Cluster
Web Services integration Server	1	x3550	-
Application Server	2	x3850M2	Load balance and Cluster
Management Server	1	x3550	-
Reporting server	1	x3550	-
Directory Server	2	x3550	Cluster
Back Up Server	1	x3550	-
Total Servers	12		
Racking System	3	NetBAY42	
Development and Testing			
Development ; Application and DB	1	x3850	-
Testing; Integration,Application and DB	3	x3550	-
Database Servers			
Database Servers	2	p55A	HACMP Cluster
Storage Infrastrcture			
SAN Switches	2	SAN32B-3	**Cluster**
Tape Library	1	TS3200	**-**
Storage Subsystem	1	DS4800	**-**
AFIS Servers			
FMS Server	2	x3650	Cluster
FMS Search Engine Cluster	43	LS41	Blade

3.5.3   Proposed e-NIC Servers

The technical specification of new servers required for the RPD at HO Data Centre that will house applications and databases will be as follows:

No	Item Description	Qty	Hardware Specification	Software Licenses
A	**Database Server** Two units pSeries Server setup as an ACTIVE-ACTIVE setup, redundant power supply, redundant network card, RAID hard disk hot swap. *Details product specification please refers to product broacher attached at Annexure section. (IBM Power 550 Express)*			
A1	Model p55A Active-active configuration (HACMP);	2	- 2 x Dual Core 4.2 GHz POWER6 processor. - 16MB RDIMMs - 2x73GB 15K RPM SAS Disk Drive. - 3xGigabit Ethernet - 2x4 Gigabit PCI Fiber Channel adaptor - IDE Slimline DVD-ROM Drive - 36/72GB 4mm DAT72 SAS Tape Drive - USB Keyboard & mouse - rack mounted - dual power supply hot swap	- AIX 5L V5.3 - IBM High Availability Cluster Multiprocessing V5.4 (HACMP V5.4) - IBMDB2 9
B	**Application Server** Will install e-NIC Application at two units Intel Server, cluster setup, redundant power supply, redundant network card, RAID hard disk hot swap.			

No	Item Description	Qty	Hardware Specification	Software Licenses
			Details product specification please refers to product broacher attached at Annexure section. (IBM System x3850 M2)	
B1	x3850 M2 Cluster setup Load Balancer	2	- 2xXeon Quad Core E7330 80W 2.4GHz/1066MHz/6MB L2 - 12G DDR2 SDRAM RDIMM - UltraSlim Enhanced CD-RW/DVD - 2 x 1000 NIC Adaptor - 3x146GB SAS HDD RAID 5 - Rack mount server	RedHat Linux 4 Advance Server - IBM WebSphere Application Server. - eNIC Application
C	**Other Servers (X3550)**		*Details product specification please refers to product broacher attached at Annexure section. (IBM System x3550)*	
C1	**Web Server** (x3550)	2	- 2 x Xeon Quad Core X5450 120W 3.0GHz/1333MHz/12MB L2 - 4GB PC2-5300 CL5 ECC DDR2 - 3x146GB 2.5in HS SAS - Ultrabay DVD-ROM/CD-RW Combo Drive, - Rack mounted	- RedHat 4 AS - Customize product

No	Item Description	Qty	Hardware Specification	Software Licenses
			- PRO/1000 PT Dual Port Server Adapter - x3550 redundant power supply 670W	
C2	**Web Service Integration Server, Management Server, Backup Server (x3550)**	3	- 2 x Xeon Quad Core X5450 120W 3.0GHz/1333MHz/12MB L2 - 4GB PC2-5300 CL5 ECC DDR2 - 2x146GB 2.5in HS SAS - Ultrabay DVD-ROM/CD-RW Combo Drive, - Rack mounted - PRO/1000 PT Dual Port Server Adapter - redundant power supply 670W	- RedHat 4 AS - Customize product
C3	X3550 **- Reporting Server**	1	- Xeon Quad Core X5450 120W 3.0GHz/1333MHz/12MB L2 - 4GB PC2-5300 CL5 ECC DDR2 - 2x146GB 2.5in HS SAS - Ultrabay DVD-ROM/CD-RW Combo Drive, - Rack mounted - PRO/1000 PT Dual Port Server Adapter - redundant power supply 670W	- RedHat 4 AS - Customize product
C4	X3550 **– Directory Server**	2	- 2xXeon Quad Core X5450 120W 3.0GHz/1333MHz/12MB L2 - 3GB PC2-5300 CL5 ECC DDR2 - 3x146GB 2.5in HS SAS - Ultrabay DVD-ROM/CD-RW Combo Drive, - Rack mounted - PRO/1000 PT Dual Port Server	- RedHat 4 AS - Customize product

No	Item Description	Qty	Hardware Specification	Software Licenses
			Adapter - redundant power supply 670W	
C5	X3350 – DNS Server	2	- 2xXeon Dual Core E3110 3.0GHz/1333MHz/6MB L2 - 2GB PC2-5300 CL5 ECC DDR2 - 1x146GB 2.5in HS SAS - Ultrabay DVD-ROM/CD-RW Combo Drive, - Rack mounted - PRO/1000 PT Dual Port Server Adapter - redundant power supply 670W	
D	AFIS Server 			
D1	X3650, FMS Server	2	-2x Quad Core X5460 120W 3.16GHz/1333MHz/12MB L2, - 4GB PC2-5300 CL5 ECC DDR2 - DVD-ROM/CD-RW Combo Drive, 835W p/s, Rack - redundant power supply	Windows Server 2003 64-bit Std NEC FMS Server for up to.
D2	- FMS SE - Chassis of Server LS41 Blade Servers	43 10	4xAMD Opteron Dual Core Processor Model 8220 95w 2.8GHz/2MB L2 4GB RAM, 2x146GB RAID-1 Disk	Windows Server 2003 64-bit Std NEC FMS Search Engine Software
E	Development and Testing Server			

No	Item Description	Qty	Hardware Specification	Software Licenses
E1	x3850 M2	1	Rack mount server, - 2xXeon Quad Core E7330 80W 2.4GHz/1066MHz/6MB L2, - 8x1GB ECC DDR2, - CD-RW/DVD-ROM Combo, - 2x1440W p/s - 4x146GB Harddisk	Database Sever Application Server
E2	x3550	3	- 2xXeon Dual Core E3110 3.0GHz/1333MHz/6MB L2 - 2GB PC2-5300 CL5 ECC DDR2 - 3x146GB 2.5in HS SAS - Ultrabay DVD-ROM/CD-RW Combo Drive, - Rack mounted - PRO/1000 PT Dual Port Server Adapter - redundant power supply	Database Sever Application Server
F	**Storage System**			
F1	SAN Switch (SAN32B-3)	2	- 4 Gbps SW SFP Transceivers - Fibre Cable LC/LC 1m multimode - Fibre Cable LC/LC 5m multimode - Fibre Cable LC/LC 25m multimode	
F2	SAN Storage DS 4800	1	- 4Gbps Fibre Channel - 4x DS4000 EXP810 Expansion Unit	
F3	Tape Library TS 3200	1	- 8144 Ultrium 4 Fibre Channel Drive - 13m LC/LC Fibre Channel Cable - Additional Power Supply	

AFIS Sever Distribution

Due to many servers required for matching purpose our delivery strategy to this server will be in stages according to database volume. The following table shows the requirement and delivery of the server over 7 years.

	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7
Database Capacity (Records)	2.4 million	4.8 million	7.2 million	9.6 million	12 million	14.4 million	16.8 million
Number of FMS Search Engines required using one rolled based fingerprint (Option 1)	7	14	19	26	31	38	43
Number of Search Engines distribution in 7 years one rolled print	7		18			18	

With the new technology improve the server performance will also improve and this will reduce the physical server usage in seven years.

3.5.4   System Capacity and Performance

Storage Capacity

Our calculation base on the following assumption:

i.   Below data being used in our proposal to calculate the storage and server capacity.

A	Number of Branch	321
B	Guaranty card printing daily	10,000
C	Total Population eligible ID Card	12,000,000
D	+30% Growth in 7 years	15,600,000
E	Roundup eligible population	16,000,000
F	Working days a year (20 days per month)	240
G	Daily transaction at each branch (B/A)	31
H	Card printing per branch per year (F*G)	7,477
I	Card printing per year (F * B)	2,400,000

In order to print 10,000 cards daily, the total records per Year	2,400,000
Cumulative Records in DB Year 1	2,400,000
Cumulative Records in DB Year 2	4,800,000
Cumulative Records in DB Year 3	7,200,000
Cumulative Records in DB Year 4	9,600,000
Cumulative Records in DB Year 5	12,000,000
Cumulative Records in DB Year 6	14,400,000
Cumulative Records in DB Year 7	16,800,000

The total record in seven years will be 16.8 millions.

ii.   Size of each record calculated from SRS documents is 3KB. Its consists of card holder info, application, artifact link, card history, workflow history, notification, name, address, ID card no, contact number and other demographic info. With the estimation of 16 million records and accommodate any error the database size is 130G.

Size data per record calculated from SRS	3KB
Size data per record for calculation	4KB
Log data per record	4KB
Total data per record	8KB
Total database size 6KB x 16M)	122GB

iii.   The system stored fingerprint 40KB capture which required 720GB storage.

iv.   Assuming 4 documents scanned for each applicant, total size is 400KB and this required 5TB of external storage.

v.   In total e-NIC system storage with additional buffer required **7TB in 7 years** project implementation.

AFIS Storage Capacity

Our calculation base on the following assumption;

i.   Per fingerprint image (rolled) = 17 KB (Capture size 512x512 pixels, WSQ 15:1 compression)

ii.   Per fingerprint minutiae (flat) = 1 KB

iii.   Per record (1-fingerprint) = 17x1 + 1x1 = 18KB

iv.   Log data per record = 2KB

v.   Total data size per record = 18+2 = 20KB

vi.   For 16million records = 340GB

vii.   Total DB size required, inclusive of 30% overhead = 340GB/0.7 = **485.7GB**

viii.   Usage of same calculation, rolled base usage will required about 500GB.

3.5.5   Storage System

SAN Storage

Our storage solution will use high performance IBM System Storage DS4800. Its being connected for server access using Fiber Channel and redundant SAN Switch.

Details product specification please refers to product broacher attached at Annexure section. (IBM DS4800 datasheet)

As a business matures, so does the amount of data and the value it holds within the organization. If the data is distributed across servers and individual storage systems, the business will face increased cost, complexity and the accompanying business risks.

The IBM System Storage™ DS3800 leads the way for these organizations to take advantage of consolidating and sharing this data within a direct-attach or SAN solution. With SAS and SATA drive intermix support the DS3800 can be optimized with the right workload demand utilizing the appropriate drive technology. The DS3800 offers the opportunity to meet the demands of data expansion, data availability and flexibility in a simple, affordable disk system.

Select configurations of the DS3800 are part of the IBM Express Portfolio™, designed and priced to meet the needs of mid-sized businesses. The Express

models combine the DS3800 storage system with the Fibre Channel cables and SFP transceivers to help you get started with storage quickly. More details about product specification please refer to

Highlights

- § 4 Gbps Fibre Channel interface technology
- § Easy to deploy and manage with the DS4000 Storage Manager
- § Combination of 12 SAS or SATA 3.5" drives per enclosure
- § Expandable by attaching up to Eight 4 Gbps drive connections support up to 224 disk drives with the attachment of 14 DS4000 EXP810, 16 DS4000 EXP710 or 16 DS4000 EXP100 disk enclosures, which support more then 67.2 TB of Fiber Channel physical storage and 224 TB of SATA disk.
- § Multiple redundant array of independent disks (RAID) levels and redundant, hot-swappable components, the DS4800 disk storage system can help you maintain data availability and security.
- § Centrally managed, shared or storage area network (SAN) environment
- § DS4800 is scalable up to 224 Fibre Channel or 224 Serial ATA disk drives and usage of it Dynamic Capacity Expansion (DCE), can provides the ability to add DS4000 EXP810, DS4000 EXP710 or DS4000 EXP100 enclosures to an existing DS4800 without stopping operations.

IBM System Storage TS3200 Tape Library Express

The new IBM System Storage™ TS3200 Tape Library Express Model is designed to offer high capacity and performance technology for the midrange open systems environments. The TS3200 Tape Library is an external 4U standalone or rack-mountable unit that incorporates up to two Linear Tape-Open™ (LTO) IBM TotalStorage® Ultrium 4 or 3 Tape. The new LTO Ultrium 4 tape drive has a native data rate of up to 120 Mbps, per drive.

The IBM System Storage TS3200 Tape Library Express Model is an excellent tape storage solution for organizations with existing digital linear tape or requiring high-performance automated tape backup. The TS3200 is also designed for organizations that have limited physical space in their IT environments. Operating in a rack environment allows organizations the advantage of placing the TS3200 in a standard 19" rack, which provides 76.8 TB of compressed tape storage in just a 4U space.

The TS3200 Tape Library can be ordered with up to two Ultrium 4 or Ultrium 3 LVD SCSI, 4 Gbps Fibre Channel 3 Gbps SAS (LTO4 only) drives, which allow connection to a wide spectrum of open systems servers. IBM Ultrium 4 tape drives can read and write LTO Ultrium 3 and read LTO Ultrium 2 data cartridges; in addition IBM Ultrium 4 tape drives in either 4 Gbps FC or 3 Gbps SAS attach help support encryption of data.

The TS3200 Tape Library has four removable cartridge magazines, providing 48 data cartridge slots, including one three I/O station. The TS3200 Tape Library provides a media capacity of up to 38.4 TB (76.8 TB with 2:1 compression) data storage per unit. Remote management and a bar code reader are standard in the library, allowing the library to run in sequential or random access mode. Optional features available are rack mount kit, additional power supply and Path Failover.

Highlights

- § Available with one or two Ultrium™ 4 or Ultrium 3 Tape Drives with either Low Voltage Differential (LVD) SCSI, 4 Gbps Fibre Channel or 3 Gbps SAS (LTO4 only) attachment
- § Configured to hold four removable magazines, providing 48 data cartridges, including a three-slot I/O station
- § Standard bar code reader and remote management unit to give the user greater flexibility in deployment and operation

§ Removable cartridge magazines supports quick bulk load of the tape library as well as ease of storage for media

§ Ultrium WORM cartridges are supported with the IBM Ultrium Tape Drives.

§ Standalone or rack-mountable

Hardware summary

§ Tape drive type: IBM LTO Ultrium 3

§ Number of drives: 1-2

§ Number of tape cartridges: 48

§ Number of mail slots: 3

§ Up to 38.4 TB capacity per tape library compressed; 19.2 TB native

§ Up to 120 Mbps native with LTO Ultrium 4

§ Up to 80 Mbps native data rate with LTO Ultrium 3

§ Dimensions (W x H x D): 17.6 in (447.5 mm) x 7.29 in (185.2 mm) x 31.9 in (810 mm)

SAN SWITCH
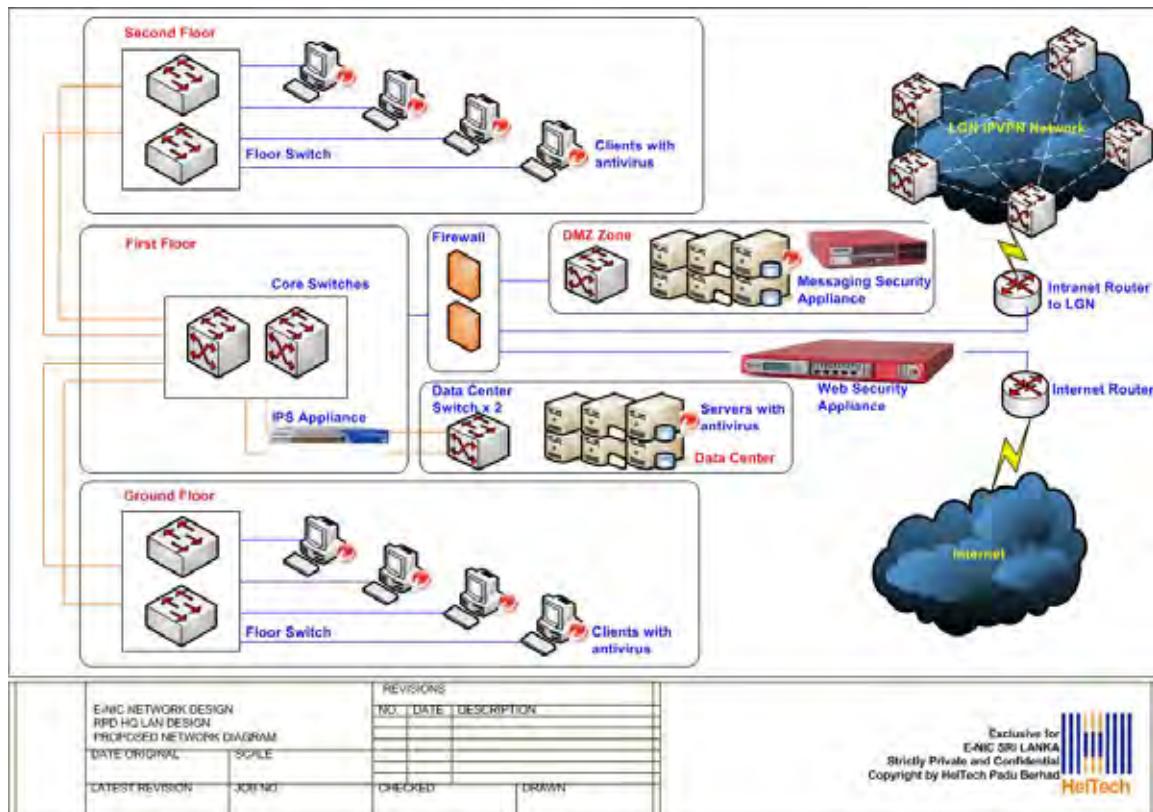
Details product specification please refers to product broacher attached at Annexure section. (IBM SAN32B-3)

The IBM System Storage™ SAN32B-3 SAN fabric switch provides 16, 24 or 32 active ports and is designed for high performance with 4, 2 and 1 Gbps link speeds. High availability features make it suitable for use as a core switch in midrange environments or as an edge-switch in enterprise environments where a wide range of SAN infrastructure simplification and business continuity configurations are possible. Many IBM and non-IBM disk and tape devices are supported in many common operating system environments. Optional features provide specialized distance extension, link trunking, performance monitoring and advanced security capabilities.

3.5.6   Network

This section addresses the Data Centre security (Network Security), Data Center LAN requirement to achieve the security goals and counter measures against possible risk factors and threats from the Internet and Intranet zones.

With regards to RPD HQ LAN, we are proposing enterprise network setup to cater new e-NIC application requirement. In general, the entire LAN will be segregated into few zones; details of each zone will be explained in details later.

- § Gateway Zone
- § DMZ Zone
- § Data Centre or *Secured* Zone
- § User Zone

Gateway Zone

This zone is the gatekeeper for all incoming and outgoing traffic to remote DS offices via LGN and to the Internet. To cater huge amount of traffic, we are proposing redundant firewall to manage and control the traffic. The redundancy will helps during any of the box failure to operate for business continuity. Routing table will

also being constructed in the firewall to point the traffic to go to LGN for DS accessing Internet.

To make sure the incoming packets from Internet is clean from worms and viruses, we also proposed InterScan Web Security Appliance (IWSA) to scan and filter every incoming packet. Administrator will be notified automatically if there is any anomaly or suspicious incoming packets.

DMZ Zone

In a network, the hosts most vulnerable to attack are those that provide services to users outside of the LAN, such as e-mail, web and DNS servers. Due to the increased potential of these hosts being compromised, they are placed into their own subnetwork in order to protect the rest of the network if an intruder was to succeed. Hosts in the DMZ should not be able to establish communication directly with any other host in the internal network, though communication with other hosts in the DMZ and to the external network is allowed. This allows hosts in the DMZ to provide services to both the internal and external network while still protecting the internal network. Server that run services that normally belong in the DMZ.

- § Web Servers
- § E-mail Servers
- § Proxy Servers
- § Reverse-Proxy Servers

To protect e-NIC network that are open to Internet risks to experiencing a dramatic increase in email-based attacks on the messaging infrastructure and network resources. Spam, spyware, phishing, botnets, zombies, targeted email attacks, and blended-threat attacks not only sap employee productivity, they endanger e-NIC networks. These threats can also expose RPD and Sri Lanka population database to data loss, compliance, and legal risks.

To combat these wide-ranging, email threats, RPD need a comprehensive messaging security solution that stops threats at the gateway before they penetrate the network. We are proposing Trend Micro InterScan™ Messaging Security Appliance which is a high-throughput, redundant appliance optimized for performance and continuous security. This easy-to-install appliance is delivered on a highly scalable platform with centralized management for easy administration. The

solution integrates multi-tiered anti-spam and anti-phishing with award-winning antivirus and anti-spyware. Flexible content filtering supports compliance and helps prevent the loss of confidential information.

This comprehensive email protection blocks the full range of standalone, blended-threat, and customer-specific attacks, providing complete email protection at the gateway. All the servers will be installed with TrendMicro Server Officescan software for further layer in protecting the network and the hosts.

Data Center or Secured Zone

This zone will hosts the critical eNIC front end and back end servers. The access to this zone is being controlled by firewall to allow or deny the traffics. Users from the Internet will be automatically block to enter this zone to disallow public users to access to reduce risks of data loss or any other harm to eNic infrastructure. They will be classified as external users where else all internal staff and traffics from DS are the trusted users.

Subject to the functional tasks, the trusted users will be getting right access to enter the zone but will be carefully monitored by the Intrusion Prevention System (IPS) application that located between Core Switch at User Zone to the Data Center Switch.   IPS pattern will detect packets that are recognized potentially to harm or jeopardize the system. The IPS log will able to identify the users that causing the harm.

All the servers will be installed with TrendMicro Server Officescan software for further layer in protecting the network and the hosts.

Users Zone

This is the interconnecting zone to connects all the client PCs to the Data Center Zone; to access the business application, DMZ Zone; for mail and Internet access; and Gateway Zone; as the path to the Internet and Intranet ie. DS offices.

User clients will be connecting to the floor switch as the immediate points to the core switch. The switches are proposed to be redundant to support failover function. The connectivity from the floor switch to the core switch will be through normal UTP cable and from the client to the floor switch is through normal Cat5 or Cat6 cable.

3.5.7   Software

3.5.7.1 Backup Software

IBM® Tivoli® Storage Manager product offerings are to provide centralized, automated data protection. Its can help reduce the risks of data loss while helping manage costs and address compliance with corporate and regulatory data retention and availability requirements.

Features	Advantages	Benefits
Backup and Recovery Management	Intelligent backups and restores utilizing a revolutionary progressive incremental backup and restore strategy, where only new and used files are backed up	Centralized protection based on smart-move and smart-store technology leading to faster backups and restores with less network and storage resources needed
Hierarchical Storage Management	Policy-based management of file backup and archiving	Ability to automate critical processes relating to the media on which data is stored while reducing storage media and administrative costs associated with managing data
Archive Management	Managed archives	Ability to easily protect and manage documents that need to be kept for a certain period of time

3.5.7.2 Database Software

IBM DB2 ENTERPRISE SERVER EDITION

e-NIC System will used the IBM DB2 to stored the demographic data, photo images, minutiae and log file. DB2® Version 9 for Linux®, UNIX®, and Windows® delivers important new features and enhancements that address the needs of your business,

whether those needs are integrating business data from across your organization, reducing costs, creating business value, or providing a secure and resilient system for the valuable information assets of your company.

Manage business not database;

Introduces autonomic enhancements that reduce the time required to administer and tune your data servers and installation enhancements that allow you to set up and deploy your applications more quickly.

Increase performance and scalability;

Introduces performance and scalability enhancements to help you achieve the highest performance when accessing and updating large volumes of data. Improvements in performance and scalability continue to make the DB2 data server an industrial-strength data server solution that is suitable for any size of company.

Information as a service;

Builds on these enhancements and extends the support to make your XML data processing even more flexible, faster, and even more reliable.

Improver security and resilience;

Providing a secure and resilient environment for your data.

High availability and data recovery;

Able to keep critical database applications online and available and improved autonomic features, increased flexibility, and reduced outage windows ensure that your applications remain running, at a minimum cost.

More agile development;

Simplify database application development, improve application portability, and ease application deployment.

3.5.7.3 IBM WebSphere Application Server

IBM® WebSphere® Application Server, V6.0 is the foundation of the IBM WebSphere software platform, and a key building block for a Service Oriented Architecture (SOA). As the premier Java™ 2 Enterprise Edition (J2EE™) and Web services application platform, WebSphere Application Server V6.0 delivers a high performance transaction engine that can help you build, run, integrate and manage dynamic, On Demand Business™ applications.

As the core configuration of the WebSphere Application Server family, WebSphere Application Server is optimized to ease administration in a scalable, single-server deployment environment. This configuration is recommended for organizations that need to build and deploy stand-alone, departmental applications and Web services, but don't require failure bypass or workload-distribution options. WebSphere Application Server supports an unparalleled range of platforms and can be deployed on servers of any size. New and enhanced features deliver the flexible, open, resilient application infrastructure you need for an SOA:

Simple, rapid development and deployment WebSphere Application Server, V6.0 helps you improve time to value and make the most of existing technology skills, with easy-to-use features designed to get you to production quickly.

§ **Get up and running quickly and easily**. WebSphere Application Server, V6.0 delivers a range of features to help ensure fast and smooth start-up, such as single-step installation and configuration, wizards and default configurations, and easy to navigate documentation that includes extensive use of sample code.

§ **Minimize development cycle time**. WebSphere Application Server, V6.0 offers features to help you maximize skills, assets and time, including pre-built functions for use within Web User Interfaces and an improved Application Server Toolkit with new automation tools, basic assembly tools for creating new Web applications, Web services and portlets, and a comprehensive unit test environment.

§ **Easy to use and deploy**. WebSphere Application Server V6.0 helps simplify the deployment experience via the rapid deployment feature

and enhancements such as install by non-root/non-administrator users.

A Secure, Scalable, Highly Available SOA Runtime Environment WebSphere Application Server V6.0 provides a secure, scalable and reliable environment for your applications and services to execute in. Using the scaling abilities and resilient security features of WebSphere Application Server can help businesses do more work with less resources.

§   **Rest assured, applications and data are secure from attack**. WebSphere Application Server V6.1 delivers an open standards-based security infrastructure that will remove vulnerable threats while maximizing developer productivity. Out-of-the-box security configurations and user registry, compliance with government standards, and stringent Web services security give ultimate peace-of-mind.

§   **Run your applications where it makes sense for you**. WebSphere Application Server V6.0 supports the broadest range of platforms in the industry, helping provide assurance that your applications can be built to run on the platform that most makes sense for your business.

§   **Keep pace with a constantly changing environment**. WebSphere Application Server V6.0 delivers unbeatable performance that will drive high throughput and scalability with JDK 5 enhancements and improved cache off-loading.

§   **Expand in response to evolving business needs**. WebSphere Application Server V6.0 provides a flexible deployment environment that enables your business to grow at the pace and cost structure required.

Extensive Communication Services, WebSphere Application Server V6.0 helps you improve the flexibility of your business and increase return on investment by making your application services more reusable and accessible to new users, in new ways.

§   **Compelling new ways to interact**. WebSphere Application Server V6.0 supports Session Initiation Protocol (SIP) servlets to offer standardized support for interactive user sessions that involve real-

time multimedia elements such as voice, video, instant messaging and online games.

§ **Re-use existing assets and extend their reach**. WebSphere Application Server V6.0 delivers extensive Web services support and a powerful Java Messaging Service (JMS) engine to help you extend the reach of your existing applications and maximize asset utilization. New Web services standards, including WS-Business Activity, WS-Notification and WS-I Basic Security Profile, help you more securely extend your reach, and give better application portability and control.

§ **Extend services to the most heterogeneous environments**. WebSphere Application Server Version 6.0 interoperates seamlessly with WebSphere MQ and is tightly integrated with WebSphere ESB. As a result, you can combine these products to form a powerful Enterprise Service Bus that can integrate the most diverse applications and environments.

§ **Effective application management,** WebSphere Application Server, V6.0 empowers you to direct your IT budget at beating competitors to market and not at maintaining existing infrastructure. Reduce the costs of managing your environment, with effective, easy-to-use management tools. **Simple Administration and Maintenance**. WebSphere Application Server, V6.0 provides features to maximize the efficiency of managing the deployment environment with a new console command assistant, easier security configuration and database connectivity, wizards and a stand-alone thin administration client.

§ **Effective ecosystem for self-help and guidance**. WebSphere Application Server, V6.0 offers extensive documentation, education and self-help tools like the IBM Support Assistant, as well as a skilled and accessible partner and user community to help you.

3.5.7.4 System Software and System Management Utilities

IBM Director V5.10

IBM Director V5.10 is the latest release of this impressive suite of systems management tools designed to deliver superior hardware manageability, enable maximum system availability, and help lower IT costs.

Its industry-standard foundation enables heterogeneous hardware support and works with a variety of operating systems and network protocols. This comprehensive hardware management solution includes:

- § Inventory of hardware features and settings
- § System health notification
- § Proactive and automated systems management

Leveraging industry standards allows for easy integration with other systems management tools and applications. IBM Director delivers comprehensive, remote hardware management with:

- § Powerful user interface that works the way you do
- § Lighter product footprint that offers more choice about the amount of hardware management you want
- § Open, standards-based design that facilitates management of heterogeneous hardware environments
- § Enhanced integration with higher-level management products, including Microsoft® SMS and Microsoft Operations Manager (MOM)
- § Cross-platform hardware management solution; serves as the common thread across IBM Virtualization Engine™
- § Self-managing, smart tools
- § Easy installation and setup
- § Comprehensive BladeCenter support with easy, single point of configuration, deployment, and management

IBM Director is included with the purchase of IBM System x™ servers and IBM BladeCenter® systems and is offered for purchase to help manage select non-IBM

systems. Optional, fee-based extensions to IBM Director are available if you want more advanced management capabilities.

§   Optional add-ons include:
§   Capacity Manager
§   Remote Deployment Manager
§   Software Distribution Premium Edition
§   Application Workload Manager

Use IBM Director V5.10 as a stand-alone or with existing enterprise or workgroup management environments to access and manage physically dispersed IT assets more efficiently.

Flexible capabilities can help you realize maximum system availability and lower IT costs. With IBM Director, IT administrators view and track the hardware configuration of remote systems in detail and monitor the usage and performance of critical components, such as processors, disks, and memory.

In addition to the improvements to IBM Director, enhanced extensions are also available. These tools are tightly integrated with IBM Director for consistent management from a single console.

IBM Director V5.10 Features

§   An easy-to-use, integrated toolset helps you get started faster, accomplish more in a shorter period of time, and manage more systems per technician.
§   Support for non-IBM hardware with the innovative use of industry standards from Common Information Model (CIM) to SNMP enables heterogeneous hardware management, protecting your existing IT investment
§   Seamless integration that protects your investments in other management packages with more extensive hardware manageability
§   Integrated, centralized SQL database that makes system-related data available, even when the specific system is not directly available

§ Multiple operating system support with IBM Director that smoothly handles a variety of operating systems

§ Support for server, workstation, desktop, and notebook systems with IBM Director to support a wide range of systems.

AIX System Management facilities on System p
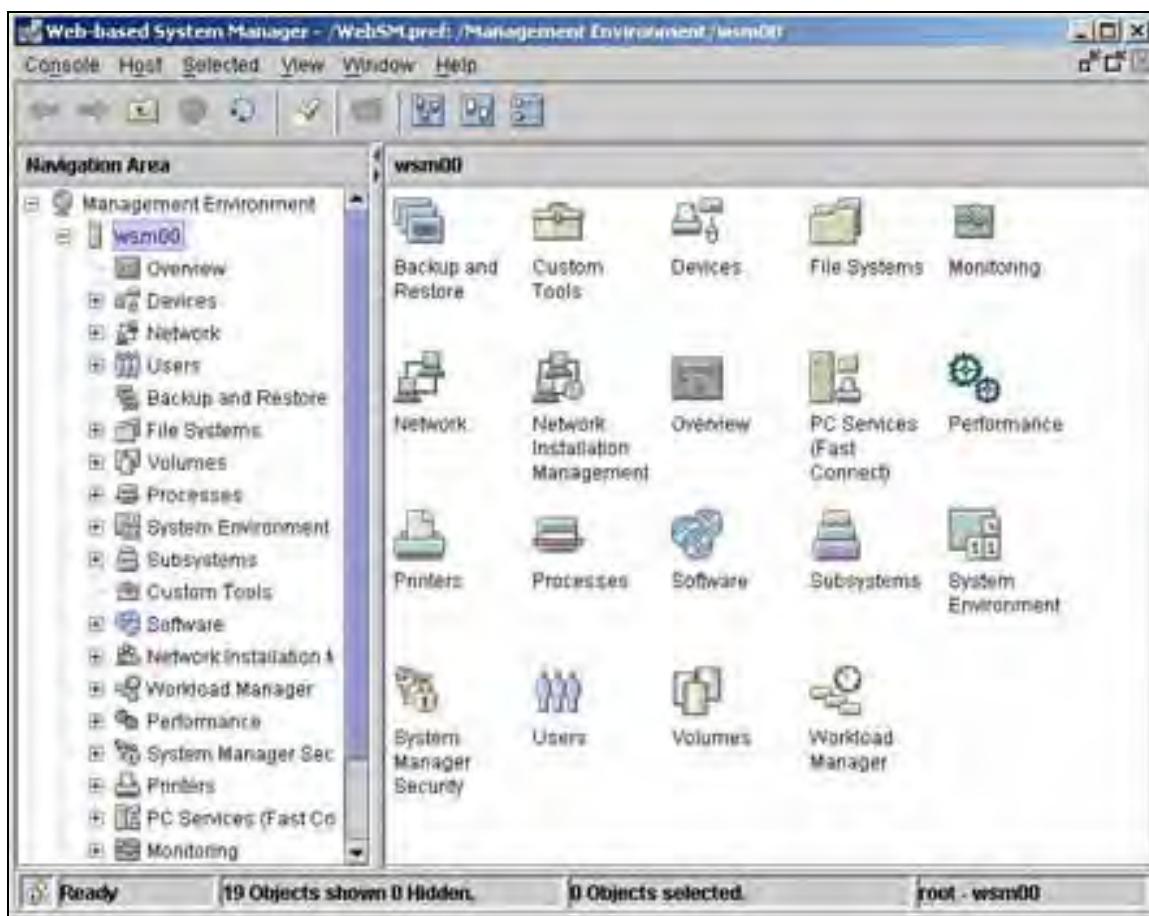
AIX offers multiple choices to simplify the system management customized to the administrative requirements.

System Management Interface Tool

The System Management Interface Tool (SMIT) is a simple, yet powerful, tool that helps you perform system management tasks from its menu-driven interface. All major system management tasks on your system are presented in the main SMIT menu, providing a single entry point from which to start a task. Using fast paths takes you directly to task menus or dialogs. You no longer need to remember which command does what task. As new or improved system administrator features and functions are added in AIX, you will continue to appreciate the ease that SMIT brings to your system management.

Web based System Manager

Web-based System Manager, released with AIX® V5.1, is a comprehensive suite of system management tools for the AIX operating system. Because it exploits familiar end user interaction concepts and visuals, while minimizing the presentation of UNIX® operating system-unique concepts, administrators with Microsoft® Windows® system administration skills can use it to easily manage an AIX operating system.

The Web-based System Manager utilizes a management console capable of administering multiple AIX operating system hosts from AIX, PC or Linux® remote clients. The new plug-in architecture makes it easier to extend the application suite. In addition, Web-based System Manager supports dynamic monitoring of system events through its integration of the Resource Monitoring and Control (RMC), developed for management of IBM UNIX systems.

Management Edition for AIX

Management Edition for AIX® (ME for AIX) is an integrated systems management offering created specifically for the System p™ platform that provides as primary functions:

- § a. Monitoring of the health and availability of the System p platform,
- § b. Discovery of configurations and relationships between System p service and application components
- § c. Usage and accounting of System p IT resources.

Management Edition for AIX is a bundled system management offering comprised of three seamlessly integrated products from

§ IBM Tivoli®: IBM Tivoli Monitoring V6.2;

§ IBM Tivoli Application Dependency Discovery Manager V7.1;

§ IBM Tivoli Usage and Accounting Manager Virtualization Edition for System p V7.1.

The product integration provides System p clients with a platform management solution that is easier to install and easier to implement while providing the capability for clients to manage their System p infrastructure from a single console.

IBM's premier availability solution

IBM High Availability Cluster Multiprocessing V5.4 (HACMP V5.4) helps protect critical business applications from failures. For over a decade, the HACMP solution has been providing reliable monitoring, failure detection and automated recovery of business application environments to backup resources, utilizing IBM's suite of disk families on the back-end.

HACMP software can be configured to react to hundreds of system events, including problems that are not severe enough to interrupt proper system operation (such as process failure or exhaustion of system resources). HACMP monitors, detects and reacts to such conditions, maintaining service availability during random, unexpected software problems. Up to 32 nodes running the UNIX® operating system (OS), or up to eight nodes running the Linux OS, can participate in an HACMP cluster, making it ideal for environments requiring scale-out growth with rock-solid reliability. HACMP runs on System p servers (and additionally on System i™ servers) and leverages System p virtualization capabilities by dynamically increasing system resources to accommodate takeover workloads. When running in a small micro-partition on a backup server, it enables the automatic increase in system resources to accommodate the primary application in the event of a failover.

The HACMP solution can also virtually eliminate planned outages by transferring users, applications and data to backup systems during scheduled maintenance. HACMP clusters can be configured to meet complex and varied application availability and recovery needs.

HACMP V5.4 introduces first-time support for Linux on POWER™, extending its robust capabilities and heritage to the Linux environment. Users can now leverage their existing skills in HACMP technology to manage their entire System p infrastructure—whether they

are using a single server with AIX® (IBM's industrial-strength UNIX), Linux, or a virtualized environment running partitions with both AIX and Linux. As users extend their System p environment through virtualization, they can continue to leverage their existing investments in high availability—and manage their availability all from one single user interface. Support for Linux will include the base capabilities for reliable monitoring, failure detection and automated recovery, available with AIX today.

3.5.7.5 Development Tools

Eclipse – IDE for Java Developer

Eclipse is primarily a Java product. One of the reasons it looks professional is that Eclipse uses neither AWT nor Swing. Instead, Eclipse uses its own GUI widget set and graphics library called SWT, which is integrated with the native windows and provides an "OS-independent API."

The Eclipse Platform offers the capability to share code and work as a team on a software project. Eclipse supports a wide range of code-management solutions, thanks to its plug-in architecture (however, CVS support comes out of box). The focal point of the Eclipse Platform architecture is the workspace. The workspace maintains everything necessary for building and testing a software project. It contains the objects (source code and resources). It also holds the configuration settings for the project, the IDE, and the plug-ins. The workspace is locally maintained on a developer's machine, and teams collaborate through external repositories that are meeting places for code parts from different developers. Repositories are accessible through the client-server architecture via the Internet.

The Eclipse Platform offers support for team development operations directly from the workspace. This support allows a developer to concurrently interact with several separate repositories and versions of code or projects. Resources within the workspace allow the team support component to deal with version and configuration

management issues. Of course, single workspaces can access different types of repositories simultaneously. The Eclipse Platform does not provide its own code-management solution; it always depends on external systems. The Eclipse Platform has built-in support for only one (albeit the most popular) source-code management system: Concurrent Versions System (CVS).

The primary function of CVS is to record the history of source files. When a group of developers work on the same project, CVS insulates them from each other. Every developer works separately, in his own directory and merges (from time to time) the results of the work with the CVS repository.

Eclipse has a built-in CVS client that is deeply integrated with the Eclipse Platform IDE, which is implemented as a separate perspective (CVS Repository Exploring Perspective) for interacting with CVS.

3.6   Proposed RPD Head Office and DS Offices

3.6.1   RPD Head Office

Our solution at HO will comprise of equipments required to run the e-NIC system and renovation works to be done. The proposed layout diagrams are attached at Section 9: Annexure 3 Technical Drawing.

From the Technical Drawing, 1st floor office will be setup to create the operational, monitoring, equipments room and data center area. All the equipments and workstations require will be located centralize at this 1st floor with physical security in place. All active components will be covered by a 3 year comprehensive warranty and 4 year maintenance. All passive components should be covered by a 7 year comprehensive warranty.

Uninterruptible Power Supply Systems (UPS)

The proposed UPS System which is part of the electrical design for the RPD Head Office comes complete with Internal and External Maintenance Bypass, such that on normal operation the loads are supplied from UPS.

The UPS units will be of on-line, double conversion type. Active Input Harmonic Filter will also be added in to reduce the harmonics feedback.   The battery back-up time for UPS shall be sized at rated 60kVA for 10 mins. The sizing of the back-up time is to enable the RPD Head Office to have sufficient time to power down the IT equipment in the event of total power failure. One units of Powerware 9390 - 60KVA UPS have been proposed with autonomy time of 10 mins. and include batteries of 5 years design life span. The proposed Powerware 9390 UPS units are manufactured in USA by Eaton Powerware. The UPS will located at RPD Data Center at Utility Room.

Power and data cabling

RPD Head Office requires a reliable power source that is free from interference or disturbance. The proposed electrical system will provide redundant power supply to the IT equipment for high availability and to avoid single point of failure in the RPD Head Office. Power system for the 60 workstation will back up by UPS system within 10 min and UPS also will remove surges, electrical noise and harmonics and also

Stan by Generator Set will automatically take on the load and work parallel to the UPS.

RPD Head Office Data Cabling

Data Cabling for RPD Head Office provides the information design DIGILink Certified Cabling System. Designers with a working knowledge of structured cabling systems design intend the Design Guidelines for use. The Design Guidelines are part of a series of documents supporting the design, installation, and use of a DIGILink Certified Cabling System.

We offers full service VOICE, DATA, and VIDEO structured cabling design and turnkey installations, including design and installation. We provide technologically advanced and best in class cabling solutions. Category 5e UTP cable will be used to install at RPD Head Office and using 24 port patch panel in RPD Data Center and ABS molded dual face plate information outlet with RJ 45 module (TIA/EIA – 568b).Active networks components (networks switches) provided will be 10/100 Mbps D-Link DES 3026 24+ 2 Giga fiber L2 manageable switch Giga transceiver. These will placed inside 44U racks and will interconnect OMR ,RPD,Data Center and Printing Area

3.6.2   Proposed HO Equipments

Following table is a summary of equipment to be delivered at head office.

Equipments	Proposed Model and Specification	Quantity
Workstations	Desktop Panora F18s; Intel Core 2 Duo E4500 processor, 1GB RAM, 160GB, HDD, 17" LCD, CD ROM, Genuine Win XP Pro	60 units
Notebook & Laser Printer	1. HP Compaq 6710b Notebook; HP Compaq 6710b (Intel Dual Core Processor, 1GB DDR2 SDRAM, 120GB Hard Disk. 2. Lexmark E120n Laser Printer	10 units each

	- Monochrome Laser - 1200 Image quality - 20ppm (letter)	
Heavy duty printer / copier	We are proposing Canon image RUNNER 3025 Multi Functional Digital Laser Copier with Incorporating features:- · *25 cpm copy speed* · *Remote and Cascade Copying* · *Standard Memory 512 MB RAM + 20 GB Hard Disk* · *100 mail boxes* · *Archiving Function - Over 7,000 Documents could be stored and retrieved without assistance of PC* · *Full colour LCD touch Panel* · *Copy Reservation – 10 jobs* · *Internet Ready* · *Maximum Original / Copy Size A3* · *1 – 9999 Continuous copying & 25% - 400% Zoom* · *Scan once print many* · *600 x 600 dpi Scan resolution* · *2400 x 600 dpi enhanced resolution printing* · *Paper Capacity - 550 sheets x 2 Cassette + 50 sheets by pass* · *30 Seconds - Warm up time* · *4.9 seconds – First Copy time* · *In-built cleaning / service mode* · *Automatic double side Printing (Duplex)* · *Electronic Rotate Sorting/ Collating* · *Complete With Toner & One Packet Paper.*	5 units
Color laser printer / copier	Canon iRC 2550i Digital Colour Copier with Colour Network Printing and Colour Network Scanning: · *23 ppm in Colour and 25 ppm in Black (A4)*	1 unit

| | *Full colour touch screen LCD* *Incorporates a single drum, single pass engine technology* *Twin Laser Beam Technology* *3G S-Toner (Oil-less toner)* *Electronic Rotate Sorting* *Auto service / cleaning mode* *Print Resolution 1200dpi x 1200dpi* *256 Halftones* *100 Mail Boxes* *1 GB RAM (Maximum 1.5 GB) and 80GB HDD* *Archiving Function – Over 7,000 Documents could be stored and Retrieved without assistance of PC. (100 mail boxes)* *300 user ID's with report* *Ability to restrict colour copy / print / scan to limited users* *Special Security Function - Machines serial number embedded in Microscopic Form for every colour copied / printed document* *Maximum A3 Copy/Print and Scan* | |

3.6.3 DS Offices

RPD counters at DS offices should be self contained unit with all necessary resources for acceptance of application and related processes and procedures. Following is the details equipments and services required to support DS business operation.

Data entry workstation: We are proposing local assemble product Panora F18s personal computer with Intel Core 2 Duo E4500 processor, 1G RAM, 160GB HDD, Integrated LAN, CD ROM, 17" LCD monitor, tri-lingual keyboard, mouse and genuine Win XP Pro. One flatbed scanned being used and we are proposing CanonScan LiDE model with have specification of 1000x2400 dpi, RGB three, Contact Image

Sensor element, 25 to 19200 dpi, A4/LTR paper type, 1.5 mesc/line and USB interface.

ID card imaging / finger print capturing: This workstation will be using the same local Panora Product as above with additional Canon Canon 12.0 Mega pixel Digital Still Camera and Crossmatch L SCAN 100R for photo capture and rolled base fingerprint capture. The L SCAN 100R uses a USB 2.0 interface for the fast capture and transfer of fingerprint images. The L SCAN 100R captures both flat and rolled fingerprints.

Our proposed **monochrome laser printer** with specification for A4 printing, automatic duplex printing and network interface ready is Lexmark E250dn Laser Printer. Its has technology of 2400 Image Printer, 30 ppm and 32MB memory standard.

Uninterruptible Power Supply Systems (UPS)

The proposed UPS System which is part of the electrical design for the DS Office comes complete with Internal Bypass, such that on normal operation the loads are supplied from UPS. The UPS units will be of on-line operation type. The battery back-up time for UPS shall be sized at rated 3kVA for 10 mins. The sizing of the back-up time is to enable the DS Office Office to have sufficient time to power down the IT equipment in the event of total power failure. One units of Defender - 3KVA UPS have been proposed with autonomy time of 10 mins. and include batteries of 5 years design life span. The proposed Defender UPS units are manufactured in Italy.
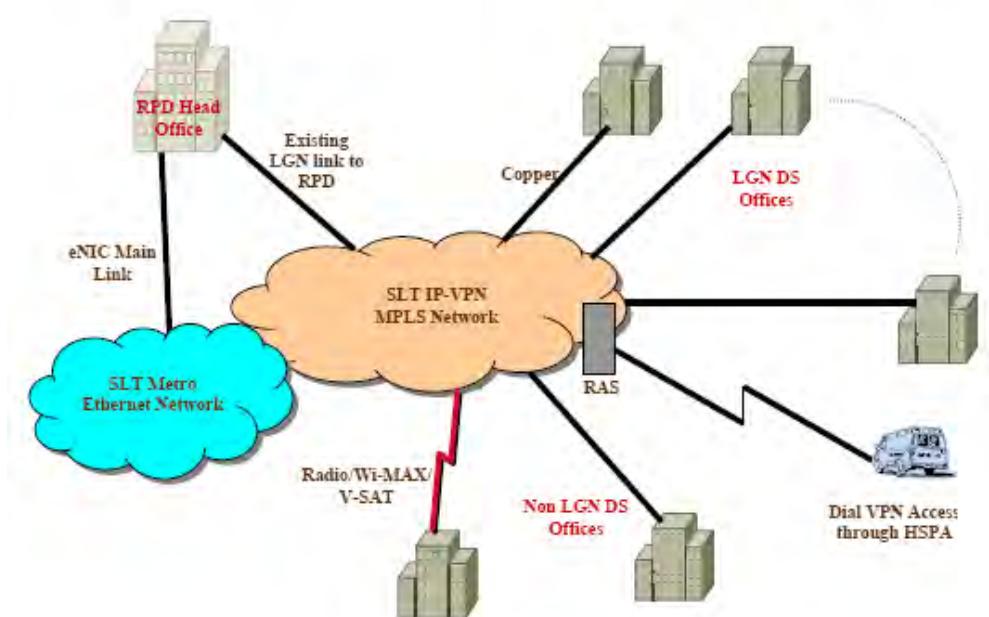
DS Office requires a reliable power source that is free from interference or disturbance. The proposed electrical system will provide power supply to the IT equipment for high availability and to avoid single point of failure in the RPD Head Office. Power system for the every 4 workstation will back up by UPS system within 10 min and UPS also will remove surges, electrical noise and harmonics.

Furniture

For the Furniture setup, we propose four workstation inclusive of chair, document cabinet and two nos of chest of drawers to meet the Data DS Office Requiment , for the waiting applicants we will provide the Link Chair .

3.7   Proposed Wide Area Network Communication

With regards to the e-NIC application system architectures and requirement from RPD, We proposed a top to down design approach where meets up with RPD requirements where future connectivity shall be determined first. From there we scale down to fit for today's requirement. This approach ensure that RPD will not be limited to choices of migration or expansion method in future but also to enable RPD to be ready for the future e-services. The main criteria are to determine what kinds of investment are required and to fully understand how the network shall look like in the future. Features of the network infrastructure are as follow.

The proposed network will be an MPLS based IPVPN network which has been awarded the highest international information security standard, ISO 27001 certification.

Main Link to RPD Head Office

The RPD Head Office will be connected to SLT MPLS IPVPN Network through Metro Ethernet, (a high speed optical fiber based access technology). With Metro Ethernet link, full redundancy is assured with optical fiber ring topology and MPLS Fast Reroute (FRR). The Bandwidth is scalable up to 100Mbps on request. The main link to the RPD head office will be provided with an Ethernet interface that can be directly terminated at the L3 device (Router / Switch) installed at the Head office. SLT will not provide the Router or L3 switch for the head office.

Branch Office Connectivity

The remote Divisional Secretaries (DS) offices will be connected to MPLS IPVPN Network of SLT with required Bandwidth as stated. The last mile connectivity to each DS office will mainly be on copper cables. Wireless access technologies such as point to point radio, Wi-MAX or V-SAT will be used depending on the technical feasibility wherever copper connectivity is not possible. These links are scalable on request up to 2Mbps. For the 177 LGN sites which are part of eNIC locations, SLT will upgrade the bandwidths of the links as required. The proposed router for DS offices is Cisco 1841-SEC/K9 bundle equipped with one Serial port (V.35) that can handle up to 2 Mbps, 2 numbers of 10/100 Mbps Ethernet LAN Ports and IOS advanced security. This can be connected to the DS office Local Area Network (LAN) through an Ethernet interface.

RPD Mobile Office Connectivity

The Mobile offices will be connected to SLT MPLS IPVPN through 3.5G network of Sri Lanka Telecom Mobitel, a fully owned subsidiary of SLT. Each work station can be connected through a 3.5G Modem with USB interface and each work station will require individual connection. The modem operates on Power over USB and hence, it is easy to use. Mobile users will be authenticated using a user name and a two factor password (PIN number + Password obtained from token that refreshes every 60 seconds) Ports and IOS advanced security. This can be connected to the DS office Local Area Network (LAN) through an Ethernet interface.

RPD Mobile Office Connectivity

The Mobile offices will be connected to SLT MPLS IPVPN through 3.5G network of Sri Lanka Telecom Mobitel, a fully owned subsidiary of SLT. Each work station can be connected through a 3.5G Modem with USB interface and each work station will require individual connection. The modem operates on Power over USB and hence, it is easy to use. Mobile users will be authenticated using a user name and a two factor password (PIN number + Password obtained from token that refreshes every 60 seconds)

3.8   Proposed RPD Mobile Office Units

UNIT A – LARGE BUS (01 NO)

We are proposing a brand new Lanka Ashok Leyland VIKING Air-Conditioned high roof bus. It's have following specification;

- § Powered by six cylinders AL HINO WOOD 160 HP.
- § Serat engine driven A/C Turbo charged diesel engine
- § Fitted with five forward one reverse speed synchromesh gearbox
- § Right hand drive integral power steering
- § seven nos 9.00x20 size Tyres
- § 2x12 Volt batteries, full air pressure dual line fall safe breaks
- § Standard tool kit and jack, steel structured all aluminum panelled
- § High roof modern elegant designed separate engine driven Air Conditioned bus with 52 high backs seats in 3x2 lay out

The bus will be setup the interior office and branding exterior using below material;

- § 02 nos work stations with sufficient space/ capacity for notebook Computer, data entry operator and a staff officer- made out with 9mm – 12mm MDF sheets, painted with pre & post coat using CIC auto paints, partitioning for drawers, lockers
- § 01 no of image Thumb – impression capturing stations with necessary back drop, partitioning and lighting – made out with 9mm – 12mm MDF sheets, painted with pre & post coat using CIC auto paints backdrop to be made out with MDF sheet pre coated paints and digitally pigment based sticker to be pasted.
- § Whole unit to be illuminated with sufficient lighting and pin spots
- § Seating capacity for 08 officials made rotating chairs for workstations & 02 additional chairs
- § Fully carpeted floor with Re-furbished Roof, Left & right body
- § Branding exterior using digitally printed solvent base PVC sticker
- § Installed required power supply system

UNIT B – SMALL BUS (02 NOS)

We are proposing a brand new Lanka Ashok Leyland VIKING Air-Conditioned high roof bus. It's have following specification;

- § Brand new MITSUBISHI ROSA 30 seater High roof Bus with color model BE 637GRMSH – 30 Seater custom high roof with cooler
- § Heater and defroster (front and rear)
- § Automatic folding type door (Vacuum Type)
- § 4D33-4A Stroke, Front under view mirror, direct injection,
- § Diesel engine 4214cc, lockable fuel tank cap, heavy duty spring, front & rear
- § Exhaust brake system, clutch booster, reverse warning buzzer,
- § Standard tool set spare type & carrier
- § Brand new Lifter (Made in Italy), S6500, Yanmar L100 (Air cooled diesel)
- § 4.84Kva out put at 230 Volts single phase 2 wire – 50Hz – 3000 RPM
- § Sound attenuated canopy

Construction of interior office and branding exterior using below Material

- § Fully air conditioned
- § 02 nos of Workstations (with sufficient space/ capacity for a notebook
- § Computer, data entry operator and a staff officer in charge for
- § Application verification – to be provided in Knocked-down or fordable
- § Form – suitable to be setup outside vehicle within a short period of time
- § Made out with 1.2mm heavy duty box iron and sufficient brackets with
- § Outer to be covered using 9mm – 12mm MDF sheets painted with pre &
- § Post coat CIC paints
- § 02 nos of portable image printed on Flex digital with Islets hooks to mount
- § Thumb impression capturing stations with necessary backdrop partitioning
- § And lighting – made with 9mm – 12mm MDF sheets painted pre & post coat
- § Using CIC paints, backdrop tp be made with MDF sheets with pre coat and
- § Digital pigment base sticker pasted and required lighting and pin spots

- § Conventional seating capacity either in Vehicle mounted or in a Knockdown
- § Or fordable form
- § Fordable chairs for work stations, inclusive of 4 additional chairs for Applicants
- § Sufficient Lighting and power supply system
- § Branding exterior using digital solvent base PVC stickers

3.9   Proposed ID Card and Card Personalization

3.9.1   Introduction

Having conducted a very thorough and detailed study on all the requirements of the eNIC Card Project of the Ministry of Internal Administration of Sri Lanka, we have designed a highly reliable and comprehensive Secure ID Card Personalization System that complies and satisfies every requirement, aspect and specification of the Solicitation and Purchaser. In our proposed personalization system, we have used world renowned state-of-the-art security print technologies, imaging technologies, and software systems to provide Sri Lanka with the utmost quality, productivity and security.

We are also proposing a highly reliable and durable Card Body to produce the eNIC Card. The proposed Card body is a composition of PET and Teslin. Such card constructions are being used worldwide for high security ID Card products such as National ID Cards, Voter Registration Cards, Driving Licenses, etc.

We are happy to offer 10 Years Warranty against physical failure of the Card Body, Card Construction, Security Features and the Personalization Information printed on the Card under normal usage conditions.

The construction of the proposed Card body conforms to the highest International Standards such as ISO, ICAO 9303 and the Visa Credit Card standard. In order to offer highest degree of robustness the Card body is constructed with 02 layers of PET and 01 layer of Teslin material, each layer with 250 micron/10 mil of thickness. All pre-printed security features and personalization information will be incorporated on the central Teslin layer which will be laminated between two PET layers in the finished card. This construction will provide the utmost in protection and security to the personalized printed data and security graphic-art printing on the Card. This construction will also add extra life to the Card body and the printed information on the Card as it protects and prevents from any possible environmental and usage hazards.

Our proposed card personalization process is designed to function as an independent, but integral part of the whole eNIC Card issuing system. It is designed in such a way that:

§ Only authorized processed personalization information and data is collected as a "batch" into the personalization system.

§ The eNIC cards will be personalized on the pre-printed security Teslin cores of 250 microns of thickness using the personalization information collected.

§ The personalized Teslin central core will be laminated with 250 microns PET outer-layers on each side.

§ The finished eNIC Cards will be precision die-cut from the laminated card batches.

§ An automated inspection will be performed on the quality and accuracy of the finished Cards.

§ Only quality approved eNIC cards will be accurately packaged for delivery to the RPD.

All eNID Cards will be personalized in Three Languages – Sinhala, Tamil and English as required by the Department of Registrar of Persons.

In doing this, we will employ a strict logistic management process including a secure audit trail system with PKI based information security and a user authentication policy that support and enhance the efficiency and effectiveness of the logistic and audit control process. After the card personalization is completed, the information will be securely sent to the main RPD Data Center System for relevant administrative and reporting purposes.

The main equipment and software-driven components of the proposed Card Personalization System consist of;

§ A hi-speed Indigo S2000 Digital Press Printer with two-sided, high-resolution (600DPI), 4 color (CMYK) printing capabilities that can produce over 10,000 Cards per hour.

§ A stack-fed, high speed AutoFeeds Laminator capable of producing up to 75,000 cards per hour.

§ A high-speed AutoFeeds rotary die cutter rated at up to 60,000 Cards per hour (approximately) using a 21 cards/batch format).

§ An automated visual inspection system that evaluates each finished card for print quality, presence of key features and barcode readability (approximately 1,000 cards per hour per unit; 2 units are proposed).

As all these personalization system machines and products are built for 24 x 7 heavy duty production, our proposed solution could provide over <u>03 times</u> the capacity that has been specified by the Department of Registrar of Persons provided the printers are used for all three shifts of the day. At the same time, our comprehensive Disaster Recovery Plan and System includes all the major components of the main production and personalization system. This Disaster Recovery System guarantees 100% redundancy to the Secure ID cards personalization process.

Our proposed Secure ID card meets all the security feature requirements as set out in the RFP for the eNIC Card Project. We have fully understood the requirements of the Ministry of Internal Administration in terms of security features and the security and authenticity concerns of the Government of Sri Lanka in issuing a new secure ID card. As a result, our proposed eNIC card solution includes all the security features of the "List A" and two Security Features from "List B" as stipulated in the Tender Addendum dated 14th May, 2008 issued by the Ministry of Internal Administration. In addition, we have also incorporated the Invisible Personal Information (IPI) feature - the world's only security feature that inserts personal (variable) information to the Photograph on the ID card providing an exceptional level of security to the Sri Lanka's new ID Card. IPI is also one of the key features incorporated in the Sri Lanka's N-Series Passport, which has not been breached by fraudsters, making it one of the most secured Passports in the world.

A detailed description of each offered Security Feature is provided in the latter part of this section.

3.9.2 Physical Properties and Construction of the proposed eNIC Card (CR 1.1a and CR 1.1b)

Many Government agencies worldwide have turned to OpSec to provide and protect Secure ID Cards, using secure card solutions proposed in this proposal, and for our expertise in secure card technologies used in identity cards. Our cards are assembled from multiple layers to withstand the roughest of handling and meet specific printing needs. OpSec identity cards meet or exceed applicable international ISO standards for ID cards, including laminate adhesion, surface abrasion, impact

resistance and resistance to image fading due to temperature, humidity and UV light. We provide the Teslin card construction proposed for the Sri Lanka eNIC Card to more than 10 National Identification programs worldwide. Our clients range from the U.S Department of Defense Military ID (3 million per year) to the Mexican Voter Identification Card (5.5 million cards per year). More than 15 million cards per year are produced in this construction for various government contracts.

The card construction proposed for the Sri Lanka eNIC Card is comprised of three layers:

- 250 Micron 10 mil PET laminate with heat activated adhesive
- 250 micron 10 mil Teslin
- 250 Micron 10 mil PET laminate with heat activated adhesive
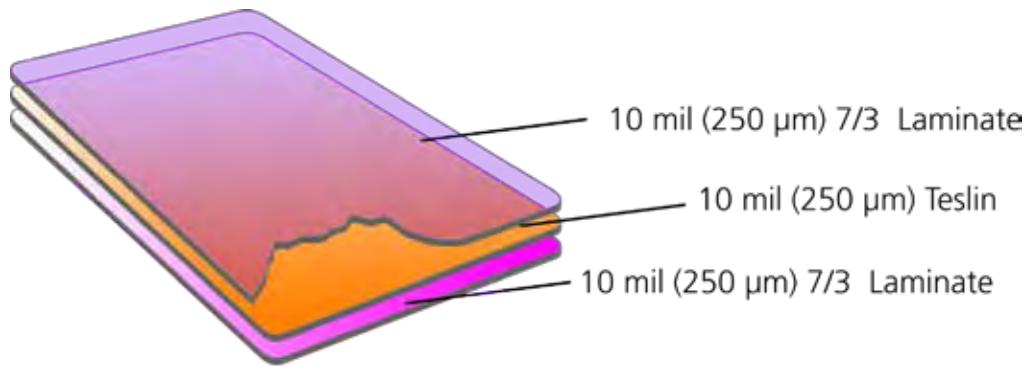
The PET laminating film component is a high clarity, abrasion resistant polyester film designed for high speed single and double sided laminating and perfect for die cutting. The film is resistant to water, oil, acid and alkali.

Our Teslin layer is a single layer of uncoated film and is the most secure bonding sheet that exists for toners, inks, adhesives, coatings, and lamination films. The lamination peel strength of the Teslin sheet is between 2-6 times that of coated papers or other synthetic stocks. It requires no edge seal to produce a durable tamper resistant identification card.

Teslin was chosen because it has an excellent opacity level, which makes it perfect for printing barcodes. In addition, Teslin is highly absorptive allowing offset inks to set almost instantly and handles the toner printing system of the Indigo Press very well.

This construction provides a very secure printed card. The combination of offset pre-print and the printing clarity offered by the Indigo Press for the color picture and text provides for a superior card in terms of durability, resistance to tampering and counterfeiting.

A graphic representation of the proposed Card Construction is below.

Our proposed Teslin / PET composite card conforms to the ISO 7810 standards as per the attached Eclipse Laboratories Report (Report is enclosed in Section "Reference Letters / Certificates") In terms of the card durability, the card meets all the testing criteria specified in ISO 10373. Therefore, we are pleased to state that our proposed secure ID Card complies with all the physical property and durability standards stipulated in the eNIC Card Solicitation Document.

3.9.3 Pre-Printed and Pre-Applied Security Features of the proposed eNIC Card (in compliance with CR 1.2 and CR 1.4)

The proposed eNIC card is enriched with many pre-printed high security features. In brief, the pre-printed features are as follows;

- Guilloche Line Motifs
- Rainbow Printing
- Micro-text Printing
- Optically Variable Ink (OVI) Printing
- UV reactive Visible and Invisible Ink
- Photo-chromatic Ink Printing
- Invisible Constant Information (ICI) as 'UV Invisible' hidden image
- Hologram Optically Variable Device (OVD) [Pre-applied to a laminate]

Note: An alternative OVD using the OpSec Advantage™ security technology is also discussed below.

With the exception of the OVD Hologram, the above security features are printed in Color on both sides of the Card as per the artworks provided by the purchaser in compliance with CR 1.4 of the IFB. Excepting the OVD, all pre-printed features will be incorporated on the Teslin "inner layer" during the card construction before completion of the final card fabrication, in full compliance with your requirement CR 1.2 of the IFB. The OVD is applied on the underside of the security laminate (adhesive side) of the top security laminate providing exceptional protection to this security feature.

3.9.4   Security Concepts and Measures proposed for the Sri Lanka's eNIC Card

We have taken all possible measures in designing the card to prevent alteration, duplication, and replication of this identity document. Our graphic designers have incorporated a broad range of security elements in the design to create a very secure card. The proposed eNIC card design is made up of multiple security levels. Our security strategy of this Card includes several embedded security features in the Teslin center core, with variable security features to be added at the time of personalization and finally a durable security laminate seals the card following personalization. It is important to note that the "document security system" does not become totally secured until the variable information and security laminate are fused together to create a secure finished eNIC card.

This component security layering approach protects the document from fraudulent production and re-production attempts at all phases of the document production, personalization and issuing process. The proposed secure document system is very durable and designed to perform for ten years under normal use of the Card. (See card warranty below.) This level of durability will help ensure all the security features and the clarity of the personalized data and the picture remain highly visible and reliable during the life of the Card, thereby ensuring inspecting parties can authenticate the identity document whenever required.
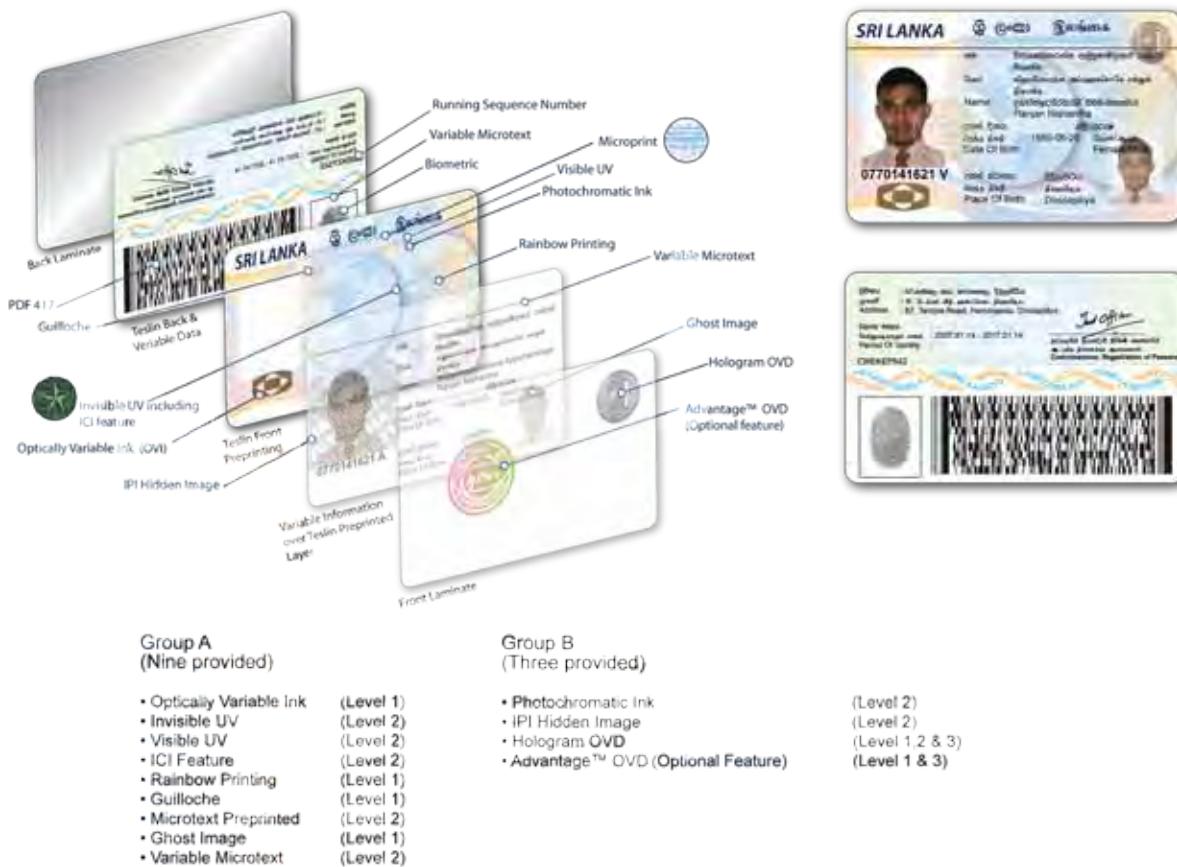
The proposed eNIC Card components will be warranted for **10 years** after passing through the personalization process, and will function against physical failure under

==normal use. Card components means the Card Body, Protection of Personalization Information and the Security Features used to protect the eNIC Card. Any defective cards will be replaced or refunded as requested by the Government. A mechanism for return of defective cards or cards that have components that have failed will be provided to the Government. However, the liability is limited to replacement of the card (remanufacture of the card). No other liability or warranty, express or implied are applicable.==

A graphic illustration of our proposed "document security solution" for the eNIC card is presented below.

Complete Card Design Illustration

Group A (Nine provided)		Group B (Three provided)	
• Optically Variable Ink	(Level 1)	• Photochromatic Ink	(Level 2)
• Invisible UV	(Level 2)	• IPI Hidden Image	(Level 2)
• Visible UV	(Level 2)	• Hologram OVD	(Level 1,2 & 3)
• ICI Feature	(Level 2)	• Advantage™ OVD (Optional Feature)	(Level 1 & 3)
• Rainbow Printing	(Level 1)		
• Guilloche	(Level 1)		
• Microtext Preprinted	(Level 2)		
• Ghost Image	(Level 1)		
• Variable Microtext	(Level 2)		

In the following pages we provide a detailed presentation on each of the proposed security features that will be pre-printed or pre-applied to the three-part card construction. These sections are headed:

§   Pre-Printed Teslin Layer

§   Personalization of the Pre-Printed Teslin Layer

§   Security Laminate with OVD Hologram

3.9.4.1 Pre-Printed Teslin Layer

On the next page, we have provided a graphic rendition of the security features that will be included in our offering for Sri Lanka eNIC card. OpSec will pre-print on the central core Teslin layer a security design comprised of sophisticated printing techniques to protect the Card. This pre-printed security design will be incorporated in the central core section of the card to protect against the potential threat of reproduction attempts of the identification card by laser copiers or document scanners. The pre-print operation will be done in the OpSec secure print facility in the U.S.A.

The pre-print security features will consist of the following features:

    i.   Guilloche Line Motifs

    ii.   Rainbow Printing

    iii. Micro-text Printing

    iv. Optically Variable Ink (OVI) Printing

    v.   UV reactive Visible and Invisible Ink

    vi. Photo-chromatic Ink Printing

    vii. Invisible Constant Information (ICI) as 'UV Invisible' hidden image

    viii. Hologram Optically Variable Device (OVD) [pre-applied]

    ix. Running Serial Number

As noted earlier, we are also presenting the OpSec Advantage[TM] OVD security technology as a possible alternative to the Hologram OVD.
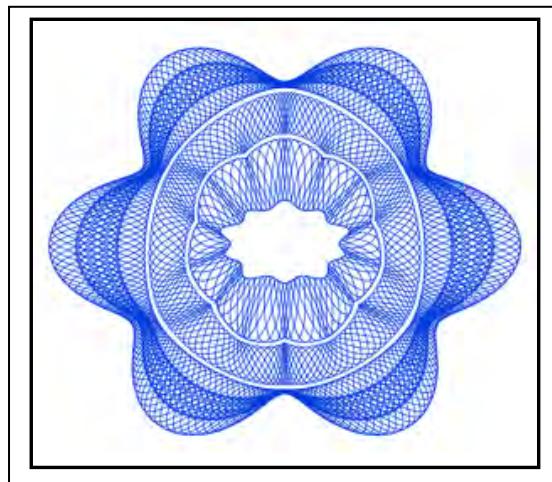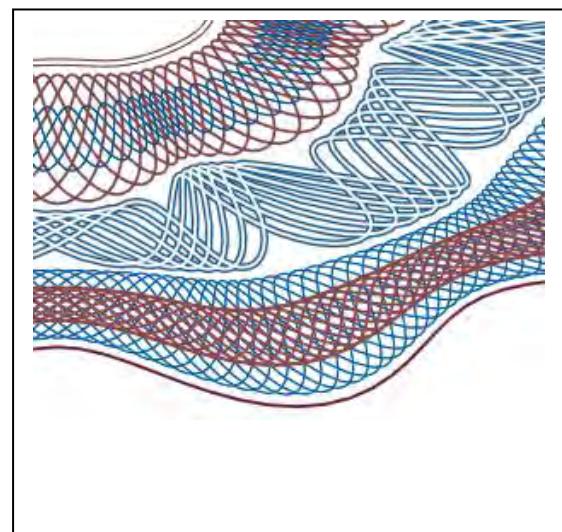
A brief description of each of the above pre-printed Security Features is presented in the section below.

i.   **Guilloche Line Motifs in Background Design.**

Guilloches are computer generated patterns of continuous fine lines, forming a unique image that can only be accurately re-originated by access to the equipment, software and parameters used in creating the original design.

Guilloche designs are security background designs that are produced with fine-line printing technology. These designs are extremely difficulty to re-produced as it involves of hundreds of fine-lines formed together to create illusive images. Guilloche Motives are commonly used worldwide in high security documents such as National ID cards, Passports, Bank Notes, etc. We will incorporate very rich Guilloche Line security designs in to the background of the proposed ID Card.
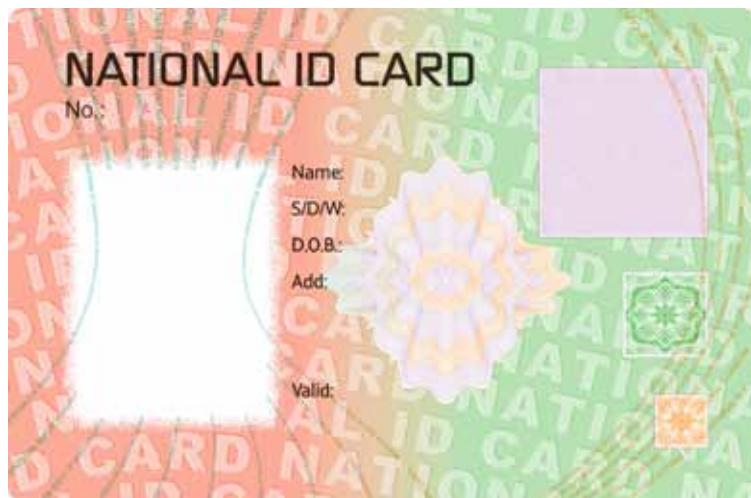
(Examples of Guilloche Line Design)

ii.   **Rainbow Printing**
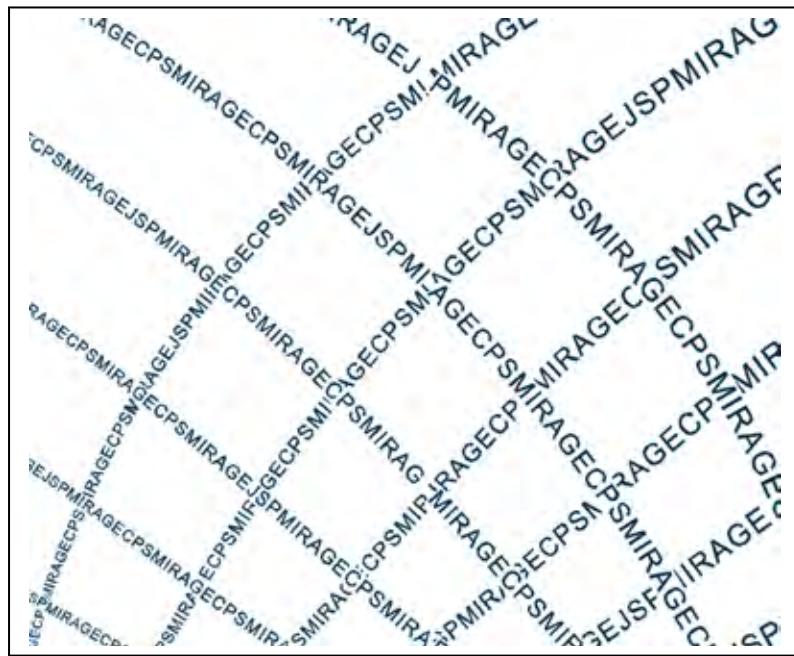
Rainbow Printing is a technique whereby two or more colours of ink are printed simultaneously by the same unit on a printing press to create a controlled merging of the colours similar to the effect seen in a rainbow.

This technique offers high degree of protection for un-authorized re-production and counterfeiting of ID documents. This feature is used for High Security Printing of Passports, Visas, ID Cards, Bank Notes, etc. worldwide.

iii.   **Micro-Text Printing**

Micro-text is composed of extra small (max 0.25 mm / 0.7 pica points) characters printed on the card. These characters are visible only through a magnifying device (glass). Different designs such as lines, boarders, etc. can be formed using micro-texts where only the design can be seen to the naked eye but, not the texts printed to form such design. Micro-text printing is used for high security printing in items such as National ID Cards, Bank Notes, Passports, Visa Stickers, etc. Micro-texts cannot be copied or re-produced using commercially available printers or scanners, therefore these print features offer high degree of protection for un-authorized re-production and counterfeiting of the documents.

(Enlarged form of Micro-text Printing)

iv.   Optical Variable Ink

Optical Variable Ink (OVI) printing is another security printing technology that is commonly used in Secure Documents such as National ID cards, Bank Notes, Visa Stickers, Passports, etc. OVI is a Security Feature displaying different   colors   depending   on   viewing angle or verification conditions. In other words, OVI changes its color from one to another at different tilt angles.

v.   UV Reactive Visible and Invisible Ink

Fluorescent visible and invisible inks are used in security sensitive documents, such as ID cards, passports and other high security documents. These inks will fluoresce when excited by 365nm UV light. In order to view the fluorescent characteristics you will require a black light.

vi.   Photo-chromatic Ink Printing

Photochromatic Ink is a security ink, which undergoes a reversible color change when exposed to UV light. We have incorporated Photochromatic Ink printing in to the background pre-printing of the proposed ID Card.

viii.   Invisible Constant Information (ICI)

ICI$^©$ is a patented high-resolution digital technology for the protection of legal and ID documents against reproduction. The technology developer, JURA JSP's, has patented the ICI$^©$ processes and any of its forms are covered by the US patent, registered and granted by US Patent and Trademark Office under No. 6,104,812, and any related international patent, copyright trademark (PCT) applications world-wide.

Travel documents, high security documents must be protected against any kind of reproduction, tampering, counterfeiting. The genuine product should not be reproducible but with remarkable changes only (i. e. the ICI$^©$ effect does not work on the copy of a genuine document). Therefore, application of ICI$^©$ is exclusive for high resolution printing processes (offset, intaglio etc.) in modern security printing works of security documents only.

This patented digital technology encodes secondary information into a source image so that the secondary image is invisible to the human eye. A simple decoder device is needed to verify the authenticity of the document, that is, to decode the information.

We will supply a quantity of 500 decoders for the ICI feature, free of charge, to the Sri Lanka government for use by government enforcement officers.

Several major attributes of the ICI security technology are summarized below.

·   **ICI provides very high security protection**

The danger of colour copying is completely avoided; the embedded image cannot be reconstructed properly with colour copiers or computer-to-print (CTP) equipment.

- **ICI provides very high versatility**

The embedded (hidden, secondary information) image can be numbers, barcodes, texts, portraits, grey-scale images (logos, a coat of arms, etc.).

ICI$^©$ technology supports all kinds of information that could be encoded into the source document. These information types include:

- Written text of any kind, including all existing alphabets.
- Black & white or grayscale images.
- Direct color images (CMYK should be avoided, direct colors improve the level of security).
- Line-based rasterized image.
- Dot-based rasterized image.
- Combination of the above mentioned types.
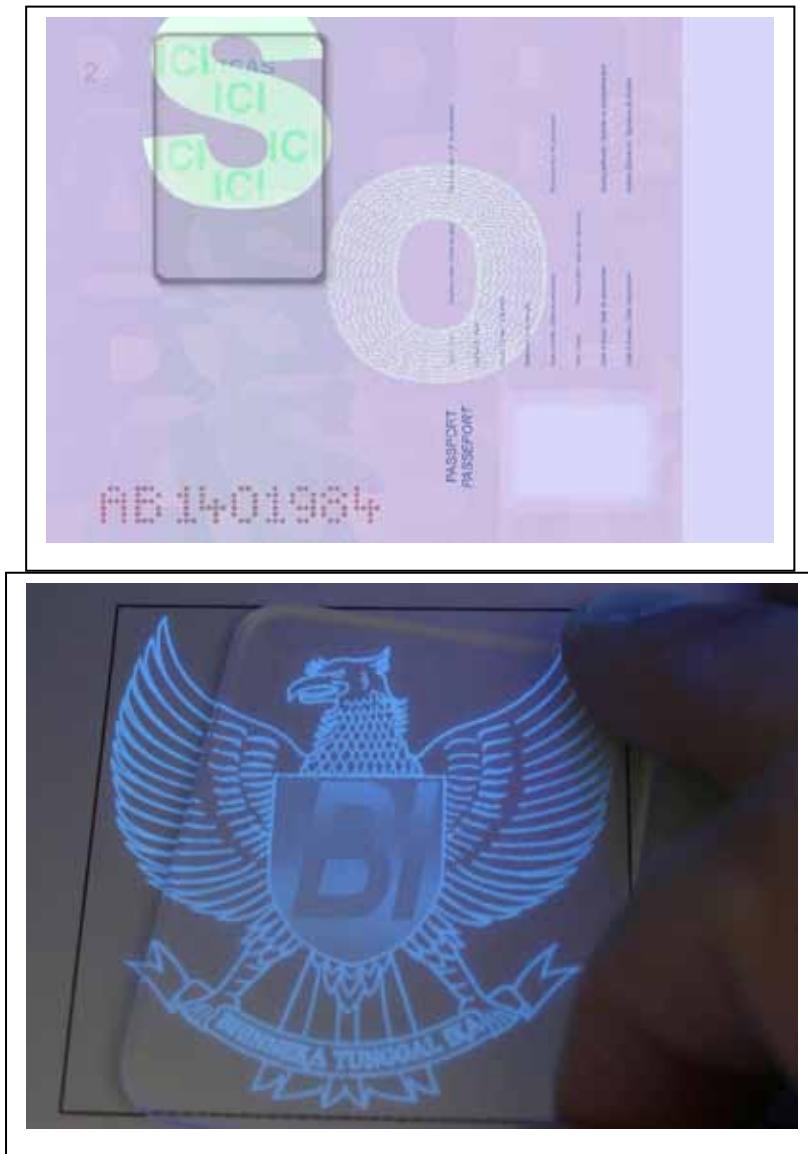
A simple plastic verifying device (ICI$^©$ decoder) is placed onto the document to decode the embedded information. The embedded information appears under the decoder.

- **ICI provides very low implementation costs, but high security value**

No additional investment or card production raw materials are required to utilize this technology. No additional operations and costs in printing and finishing are needed. The technology can be implemented into the proposed personalization system very effectively.

Combining ICI with UV and/or IR inks strongly enhances the security level of this feature. In this proposal, OpSec will combine with these inks for maximum security effect. The UV printed secondary motive (hidden image) visible only under a lenticular lens and UV/IR light, while the primary image comes up under the light alone.

(Graphical illustration of ICI printed in UV reactive Visible and Invisible print)

· Conformance to mandatory security feature

The proposed ICI feature printed in UV Ink fully conforms to your mandatory security feature "Ultra-Violet Reactive Visible and Invisible

Print" as set out in List A of the Tender Addendum dated 14th May, 2008.

ix.   OVD Security Hologram

The security and authenticity capability of the eNIC Card will be further enhanced through the incorporation of an OVD Security Hologram (a Security Industry standard) which will be applied on the inner side (adhesive side) of the front laminate in compliance with Requirement CR1.5 of the IFB. The Hologram will be produced according to customized design as agreed and approved by the purchaser.

OpSec's holographic OVD offers a very secure OVD solution for authenticating the identification card. OpSec's state-of-the-art origination labs will provide a highly visible, complex and customized design that has both overt and covert features to meet the solicitation requirements. OpSec's holographic hot stamping foil will employ a heat activated adhesive to provide good bonding to the printed Teslin sheet.

If the holographic OVD embedded in the Card is tampered with, the image will break apart leaving clear evidence that the card has been tampered with.

In addition to our standard array of security features built into our OVD holograms, OpSec will incorporate a special Hidden Image feature. This feature can be seen at a different tilt (viewing angle) of the Card thus providing an excellent overt security feature for use by enforcement officers in the field.

X.   Running Serial Number :

In our proposed security solution, we have provided a 'running serial number', unique for each card in order to maintain the highest degree of logistical control. The proposed running serial number for each Card will be incorporated at the time of Background pre-printing process. They are visibly printed on each card. The location of the serial number to be printed could be decided by the Ministry of Internal Administration depending on the overall design of the eNID Card.

The construction of the serial number consists of the batch code of 06 Alphabetic Characters and a running sequence batch number of 03 digits in compliance with requirement CR 1.2 of your RFP.

The Running Serial Number is a critical part of our production quality and audit processes designed to maintain full control of all eNIC cards throughout the production cycle. A packing manifest with comprehensive details including the relevant running serial numbers of the Cards (which are included in each Pack of pre-printed Cards in batch form) together with an audit report will be provided with each consignment of materials to the Ministry of Internal Administration for logistic control and auditing purposes. In addition, the control serial numbers of the Teslin Cores and the running serial numbers of the Cards will be uploaded to the main production server and the Central database for production controlling and auditing purposes.

50 nos. pre-printed Teslin Cores that consists of 21 nos. of serially numbered cards in each sheet will be securely packed using hazard-resistant packaging for the purpose of shipping and logistic control. Both sides of every Teslin Cores too will be individually numbered with a separate serially running control number in the form of a Barcode. A batch of 21 running serial numbers of eNID Cards which are printed in a particular Teslin Cores will be indexed (linked) together for better stock control. Each package of cores will be properly labeled with the package number, batch number, running serial numbers of the cards included, control numbers of the Teslin cores, etc. for internal auditing, stock keeping and logistic management purposes.

xi. Alternative OVD using the OpSec Advantage™ Security Technology (Optional Feature)

In this proposal, we have also offered OpSec Advantage™ Security Feature as an alternative to Holographic OVD. The proposed OpSec Advantage™ technology adds higher security to the eNIC card compared to a Holographic OVD. Therefore, in the event the Ministry of Internal Administration/RPD recognizes the benefits of the OpSec Advantage™ technology, you may choose the OpSec Advantage™ as an option to the Holographic OVD

provided in this proposal in compliance with the requirement set out in the IFB.

The proprietary OpSec Advantage™ security technology (available only from OpSec) is a liquid crystal optical variable device used only for high security government documents and ID credentials. This technology would be applied to the eNIC card as an overt security feature that is embedded in the card. Advantage™ has the unique attribute of being a transparent feature when viewed directly; the Advantage™ image changes from orange to green when viewed from different viewing angles. This tri-modal attribute would serve extremely well in protecting the eNIC card from duplicating by any means. It is an excellent first level verification for use by enforcement officials in that it will appear in either of two colors as an absolute value. It does not range through the color spectrum as other OVD's, but shifts immediately from transparency to orange and then to green when viewed by the inspecting party, thus simplifying the authentication process.

This security feature is not commercially available and only used on high security government ID application such as Passports and NID Cards. The unique design ultimately chosen by the Government of Sri Lanka will not be available anywhere else in the world. The production of Advantage™ liquid crystal, tri-modal OVD is protected by several U.S. patents and trade secrets. The technology is used in many classified high security applications by many governments and their security agencies globally.

3.9.4.2 Personalization of the Pre-printed Teslin Layer

The personalization phase of the eNIC Card system will be done in the Main Personalization Facility in Sri Lanka. At this stage, we will be using the state–of- the-art HP Indigo press that will print the photograph and other personal variable data in the highest print clarity available in the market.

eNID cards will be personalized (textual data) in all Three Languages – Sinhala, Tamil and English using typefaces as stipulated in CR 1.3 of the RFP. The textual information printed on the eNID card during personalization will be (but not limited to) NIC number, card holder's full name in three languages, date and place of birth,

address, computer generated code, and any other information as required by the Commissioner of the RPD in compliance with the CR 1.3 of SoR.

A graphical illustration of a sample NID card printed in three languages as per artist's impression is as follows; *(however, this is not the final layout as the final design will be done with the consensus of the Commissioner of the RPD)*

Security features added during the personalization process will be:

a) Variable micro-text: Using this security feature will add another layer of security uniquely tying the pre-printed card to the card holder.

b) Shadow (Ghost) photograph: This is a 35% to 50% replication of the individual's digital photograph and it maintains the same aspect ratio as the individual's digital photo. It serves well as protection against photo substitution. Shadow Image is a "toned down" image of the original photo image. In this technique, the Photo Image of the ID Card Holder will be printed as a "shadow" of the Photo overlapping the Personal Data printed on the Card. This will give extra protection to the information printed on the Card as the printed information cannot be altered without distorting the shadow image. The Shadow Image of the Card Holder will be printed in Black & White or in Color as per the choice of the purchaser. The printed shadow image has the same resolution of the applicant's photograph printed on the ID Card under CR 1.3a of the Tender Addendum to the bidding document. See example of a Shadow (Ghost) image below.

Example of a Shadow (Ghost) Image

c) Full color photo image with Invisible Personal Information (IPI)

IPI is a high security feature developed to specifically protect personalization of ID credentials. This feature links the photograph to the personal data of the card holder and to the document. Invisible Personal Information (IPI) encodes

personal data and the Serial Number of the ID card into the photograph while personalizing the Card. The **personal data is invisible to the unaided eye,** but the authorized officials may verify authenticity using a simple, inexpensive, and highly portable decoding lens (a plastic lens – please` refer to the sample provided together with the specimen cards included in this proposal).

We will supply a quantity of 500 decoders to verify the IPI feature, free of charge, to the Sri Lanka Government for use by the government enforcement officers.

IPI is considered to be one of the most secured personalizing technologies (covert) in the world and is available "**only to Government Institutions**". No private sector organizations (unless for Government subsidiaries) are offered this feature. To date there have been no incidents of breach of the IPI security feature
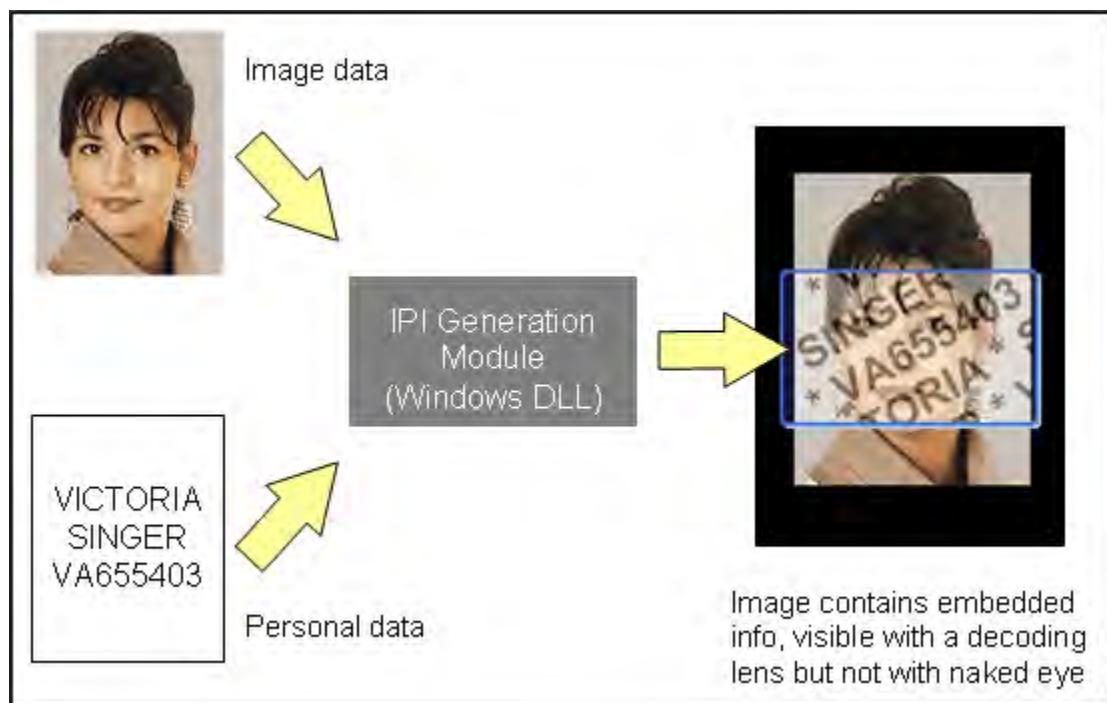
The IPI feature is incorporated into the Photo Image of the current "N" Series Passport of Sri Lanka.

IPI is a patented high-resolution digital technology for the protection of legal and ID documents against misuse. The processes and any of their forms are covered by the US patent, registered and granted by US Patent and Trademark Office under No. 6,104,812, and any related international patent, copyright and trademark (PCT) applications world-wide.

The security benefits of IPI are summarized as:

- The elimination of the photo replacement as a means of fraud.
- Verification does not need special knowledge or experience.
- Easy verification in the field; the decoding lens verifier requires no power so it may be used in almost any location.

An example of the IPI security feature is shown below.

Examples of IPI Verification

3.9.4.3   Security Laminate with OVD Hologram

As described earlier, an OVD hologram will be applied on the inner side (adhesive side) of the front laminate (250 micron PET sheet) in compliance with Requirement CR1.5 of the IFB.

NOTE: Alternatively, OpSec is offering its highest level security feature, the OpSec Advantage™ technology as an alternative to the hologram OVD, to be similarly applied to the inner side of the front laminate.

3.9.5   High Security Graphic Art Background Design

The background Security Graphic Art Design for the eNIC card will be designed by JURA JSP of Hungary. Jura is considered as the world's No.1 supplier of security design software to the Security Graphic Arts Designer market. The graphic arts to be used for the eNIC card background shall be decided by the Department of Registrar of Persons, however, we will provide the expert advice in choosing the appropriate graphics to be used. JURA JSP has designed numerous security graphic designs for National ID cards, Visa Stickers, Passports, Bank Notes, etc. and supplied software for over 100 high security printers in the world including United States of America, United Kingdom, Japan, Australia, Russia, Germany, France, Austria, etc.. Some of the prominent clients of JURA are listed in the Section 9: Annexure of this proposal under JURA Reference Sites.

3.9.6   Card Personalization Process

The Printing and Personalization System and the Electronic National ID Document construction ("eNIC" or "eNIC Card") proposed will be designed with state of the art processes, equipment and materials to minimize labor and handling, and will use automated processes where possible.

The three-piece eNIC Card construction simplifies processing by minimizing the materials and manual handling necessary to personalize, build and test the eNIC card. The raw materials will be produced in OpSec's secure factory in the USA and

will be shipped via secure, bonded carriers with complete end-to-end tracking of all secure raw materials inventory to Sri Lanka.

The Main and Backup eNIC Card Production Facilities will be fully secured via biometric access control and all production materials within the facility will be tracked from the source, through each production process to final finished card delivery and destruction of any waste material within the Facility(ies).

The Main Facility will be equipped to handle a minimum of 10,000 cards per day using a single shift operation. The proposed personalization equipment is capable of multiple shift operations, requiring minimal downtime for scheduled maintenance.

The Backup Production Facility will be a replica of the Main Production Facility and can also handle a minimum of 10,000 cards per day. The Backup Facility will be operated at least once per week to ensure all equipment, supplies and processes are always operational and available for back up production, if needed.

The Backup Production serves as the key component of our Business Continuity Plan for the Card Printing and Personalization System and will assure continuity of eNIC card production in the event there is a business interruption of the Main Production Facility.

3.9.7   Logistic Management of Raw Materials

Being one of the leading Secure Document Personalization solutions providers in the world, we have paid extensive attention and concern over handling and managing the raw materials that are used for production of NID cards. Every action and protective measures have been taken to ensure the security of all raw materials imported to Sri Lanka from the time they are released from its respective manufacturing plants. All possibilities for unauthorized manipulation of raw materials have been eliminated through implementation of proper controls and procedures.

All raw material used in producing the eNID Cards will be properly audited and controlled against delivery, storage and usage. Such details will be officially provided to the Commissioner of RPD no sooner the consignments of goods are shipped from the manufacturing plants. All Teslin Cores that are used for the pre-printing and personalization will be controlled by a serially running control number printed in both

sides of the sheets in the form of a machine readable Barcode as well as an Alpha Numeric visible Characters. These numbers will be uploaded to the Main Production Server and to the Central database upon shipment from the manufacturing plant. In addition, all Cards will be serially and individually numbered with another separate control number as per the requirement of the SoR.

At the time of accepting the materials for personalization and production of eNID cards from the authorized issuing officer of the RPD, the Operator will insert such numbers (information) to the production server for verification against the database of the serial numbers already uploaded to the production server which is generally done at the time of shipment. The Personalization System will allow personalizing Cards if and only if the serial numbers of the Teslin Sheets as well as the serial number of the Individual Cards are uploaded to the system. If the serial numbers are not available in the Database, the personalization process will be halted. This will prevent any unauthorized personalization of NID Card on any other uncontrolled materials.

3.9.8   Main Production Facility

Figure 3 – 10 shows a basic footprint of the Main production Facility, identifying the outside dimensions for the Facility and the interior dimensions of each work area within the Facility. It also shows the placement of the key equipment within the room.
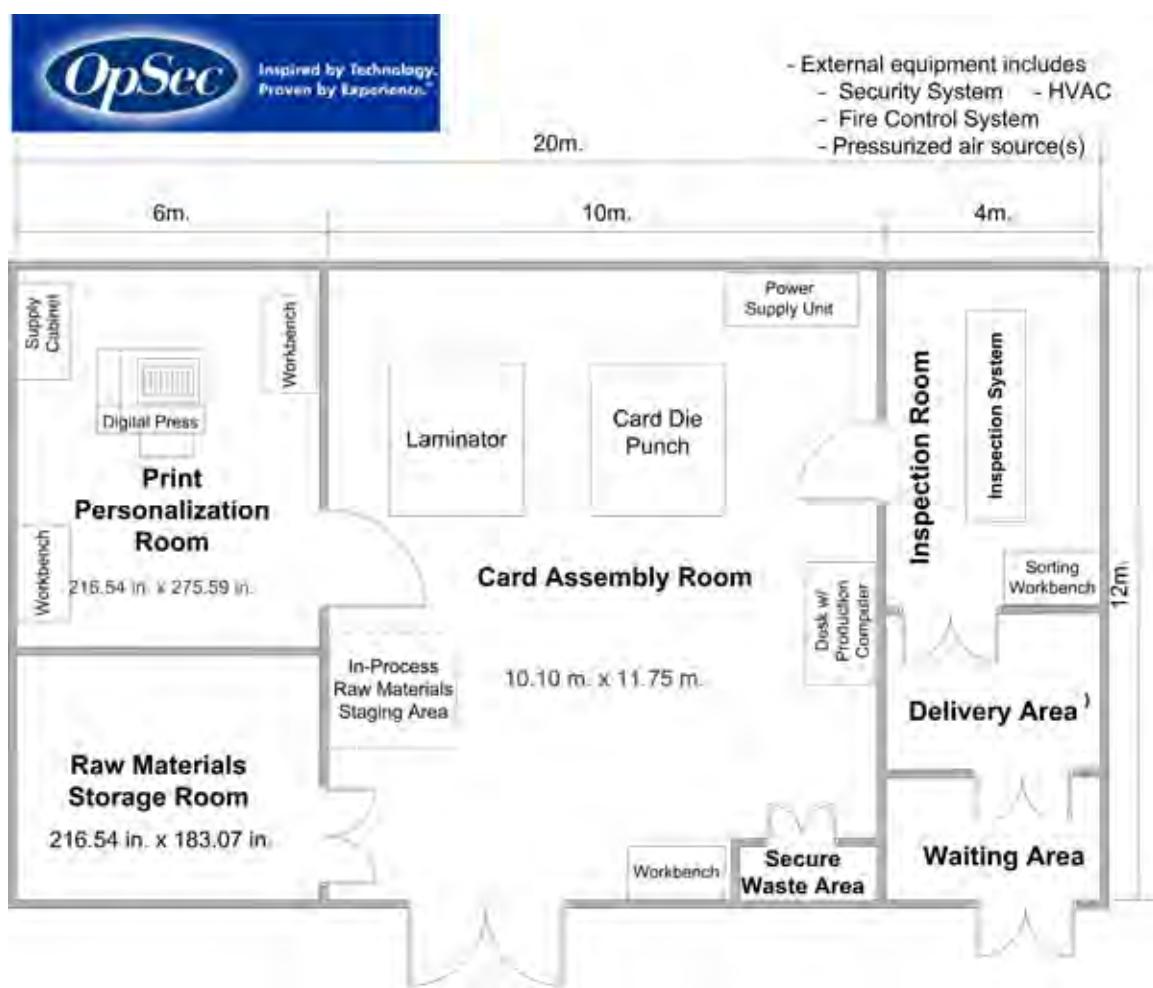
Figure 3 – 10 Main/Backup ID Document Factory Layout

The Personalization Workflow is shown in Figure **3-12** below. The workflow has been streamlined and automated to maximize efficiency and accuracy, and to minimize the labor requirement.

The Personalization Process features a high-speed, digital press (HP Indigo S2000) with two-sided, high-resolution (600 DPI is recommended), 4 color (CMYK) printing capabilities. This press is capable of producing 500 two-side printed sheets per hour with 21 cards per sheet resulting in 10,500 cards produced per hour. Note, even though the tender requires only 300 DPI print resolutions, we are willing to provide

either 300 DPI or 600 DPI to satisfy the card specification. We highly recommend the purchaser elect the 600 DPI print resolution because of the resulting quality benefits that will accrue. We offer the 600 DPI at no additional cost to the purchaser.

The Lamination Process utilizes a stack-fed, high speed AutoFeeds sheet laminator capable of producing up to 3,600 laminated sheets per hour yielding up to 75,000 cards per hour. The Laminator uses roll-fed (top and bottom) laminates and heated pressure rollers and a sheeter to produce laminated sheets ready for die cutting into individualized cards.

The Die Cutting Process uses a high-speed AutoFeeds rotary die cutter rated at up to 2,900 sheets per hour (approximately 60,000 cards per hour using a 21 cards/sheet format). This die cutter's uncomplicated design allows this high speed operation with minimal maintenance.

The Inspection Process will provide an automated visual inspection system that evaluates each finished card for the following parameters: print quality, presence of key features and barcode readability. Cards not meeting the approved specification are segregated from the cards that pass inspection for further analyses and any required remedial actions.

The production processes, and equipment specifications in our proposed personalization system are shown in the **Table 2.1** below.

Process	Equipment Used	Equipment Specifications
Communication with central system	Cisco Router	208-240VAC 50Hz
Materials Receipt eNIC Order Receipt Audit Reporting Facility Reporting Packaging/Shipping	Production Control System	Lenova PC (or similar) 2GB DRAM 400GB Disk Storage (OS + temp) 2x500GB disk Storage (data) CD/DVD RW MS Windows XP MS Office Standard Epic Lanka Security Software 208-240VAC 50Hz

	LCD Monitor	19" diagonal (1,400x900 res or better) 208-240VAC 50Hz
	USB barcode reader	USB-powered
	Laser Printer	A3 sheet (100 input/output tray min.) 208-240VAC 50Hz
	Label Printer	up to 2"x4" 208-240VAC 50Hz
Personalization	HP Indigo S2000	1,000 sheets/hr (one side) 4 color (CMYK) MS Windows XP 208-240VAC 60Hz 3 Phase 60Amp
Lamination	AutoFeeds	3,500 sheets/hr (~75,000 cards/hr) Auto sheet feeder + 2 Lamination Rolls 208 – 240VAC 60Hz 3 Phase 80Amp
Die Cutting	AutoFeeds	2,600 sheets/hr (~60,000 cards/hr) 208 – 240VAC 60Hz 3 Phase 60Amp
Inspection	Euclid Automated Inspection Systems (2)	1,000 cards/hr (each) MS Windows XP 208 – 240VAC 60Hz 3 Phase 35Amp

Table 3-1 Equipment Specifications

The Main Production Facility workflow is designed for 1 shift operation under normal eNIC Card production order conditions with extended or 2nd shift operations possible to handle peak loads.

Figure 3.11 below portrays a pictorial view of the proposed production workflow and shows the excess capacity the proposed personalization system offers – well above the 10,000/day output tender requirement.
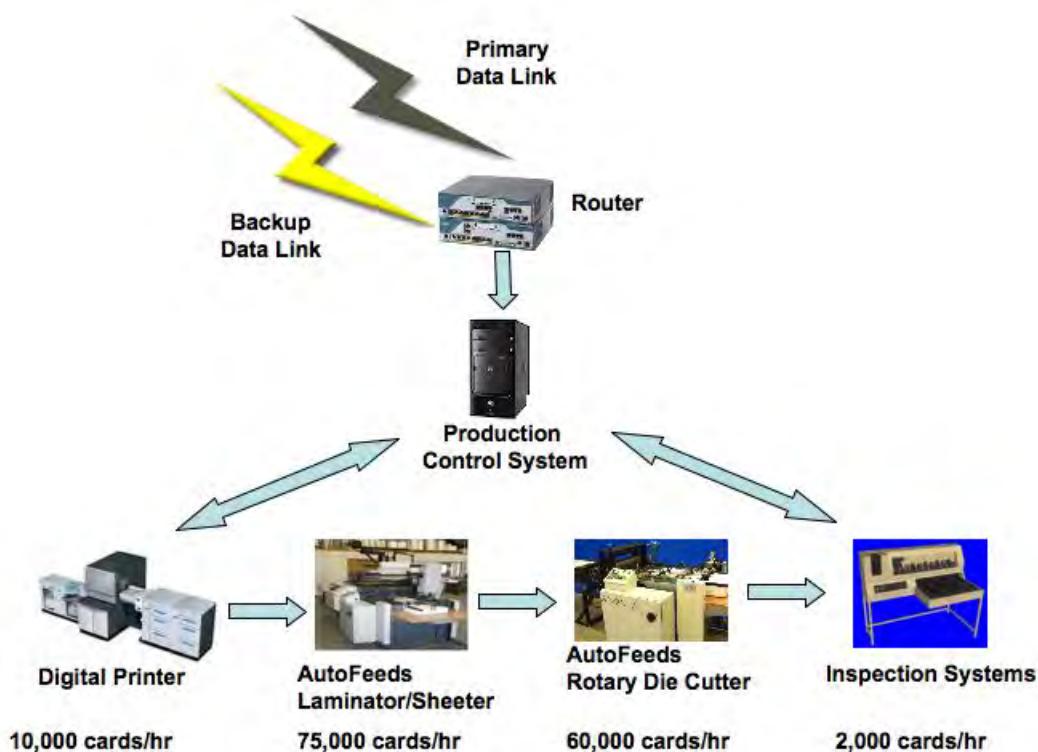
Figure 3-11 Main/Backup ID Document Factory Equipment & Capacity

3.9.9   Production Workflow Description

In this section we provide a brief description of each production process comprising the personalization workflow in the proposed Main Production facility.

Process 1)

Orders received daily from RPD (10,000 minimum cards per day)

Orders received will be pre-batched by the central system into no more than 1,000 cards per batch and then link the NID number with the pre-assigned Running Serial Number (batch code + card number in batch) associated with the individual stored in the central system. The pre-assigned Running Serial Numbers (range) together with the Teslin Sheet control batch numbers (range) will be inserted manually by the Operator after receiving the same from the "authorized material issuing officer" of the Department of Registrar of Persons. The appropriate range of running serial numbers is issued at the time of releasing the pre-printed blank Cards to the printing and production system for the purpose of personalization. The information pertaining to the NID numbers and the relevant running serial numbers of the assigned cards will be securely stored in the Central Database for future reference, verification and reporting.

Process 2)

Card Batches received will be queued for processing on the Digital Press with each batch being laid out onto one of 50 card core sheets (controlled by running serial numbers) using a pre-designed batch to sheet template (stored on the Digital Press).

The card batches will then be printed on the secure, pre-print Core sheets, 21 cards to a batch. Information with regards to the utilized Teslin cores (control serial numbers) will be then uploaded to the Main Production Server and for auditing purposes.

Personalized cards will then be checked against the Batch number for the job and for any print flaws. If necessary, the sheets will be voided using an indelible marker and logged into the secure waste holding area to await secure destruction and the job is reprinted.

Process 3)

The   personalized   card   will   be   transferred   in   batches   to   the   laminator

Process 4)

Batches will be laminated via insertion between the Top and Bottom roll laminates in the Laminator station.

Process 5)

Laminated Cores will be transferred to the Die Cutter station

Process 6)

Card Batches will then be die cut into individual personalized National ID Cards

Process 7)

Personalized Cards will be transferred to the automated Inspection System

Process 8)

On the Inspection System, all cards will be visually inspected for

  a. Print Quality (features legible)
  b. Visual defects (scratches, haze, bad printing, presence of security features)
  c. Scanning defects (PDF417 can be read)

Process 9)

Cards failing inspection will be logged as rejected and transferred to the secure waste holding area to await secure destruction. The Running Serial Number and the National ID number of the rejected cards will be reported back to the central system

for reprocessing into a future card Batch. If an entire card Batch is found to have errors, the Batch may be re-run from the Digital Press Process 2).

Process 10)

Cards Passing Inspection will be packaged for transfer to RPD's Cards Issuing division (or as preferred by the RPD) and a manifest for each box and each set of boxes will be prepared with the Batch Number(s) and the Running Serial Numbers of the cards enclosed in the box. The Running Serial Number of the card will be then linked with the eNID Number and a report to this effect will be uploaded to the Central database and the main production server. The RPD signs for each batch of cards and the name of the RPD employee will be recorded and logged for reporting and audit purposes.

Process 11)

Daily, Weekly and Monthly basis detailed reports of cards produced (and cancelled) will be available from the Production Control Server.

Orders will be received from the main RPD database servers in a XML format already marked with batch numbers (6 alphabetic/s) and with each eNIC personalized data segment (each person's data) marked with the batch number and a unique 3-digit card number. The photo files should be numbered to match the files reference within the XML item for each individual card so they can be accurately matched to the rest of the personalized data for that individual.

These batched order files will be merged with a pre-loaded printing template on the Indigo and built as separate jobs for printing on the Indigo Digital Press. As each job is completed, the individual sheets will be inspected to ensure the proper batch and card markings are present for the job printed.

The Backup Production Facility will use the same production workflow as the Main Facility.

The workflow diagram below graphically summarizes the process described above.
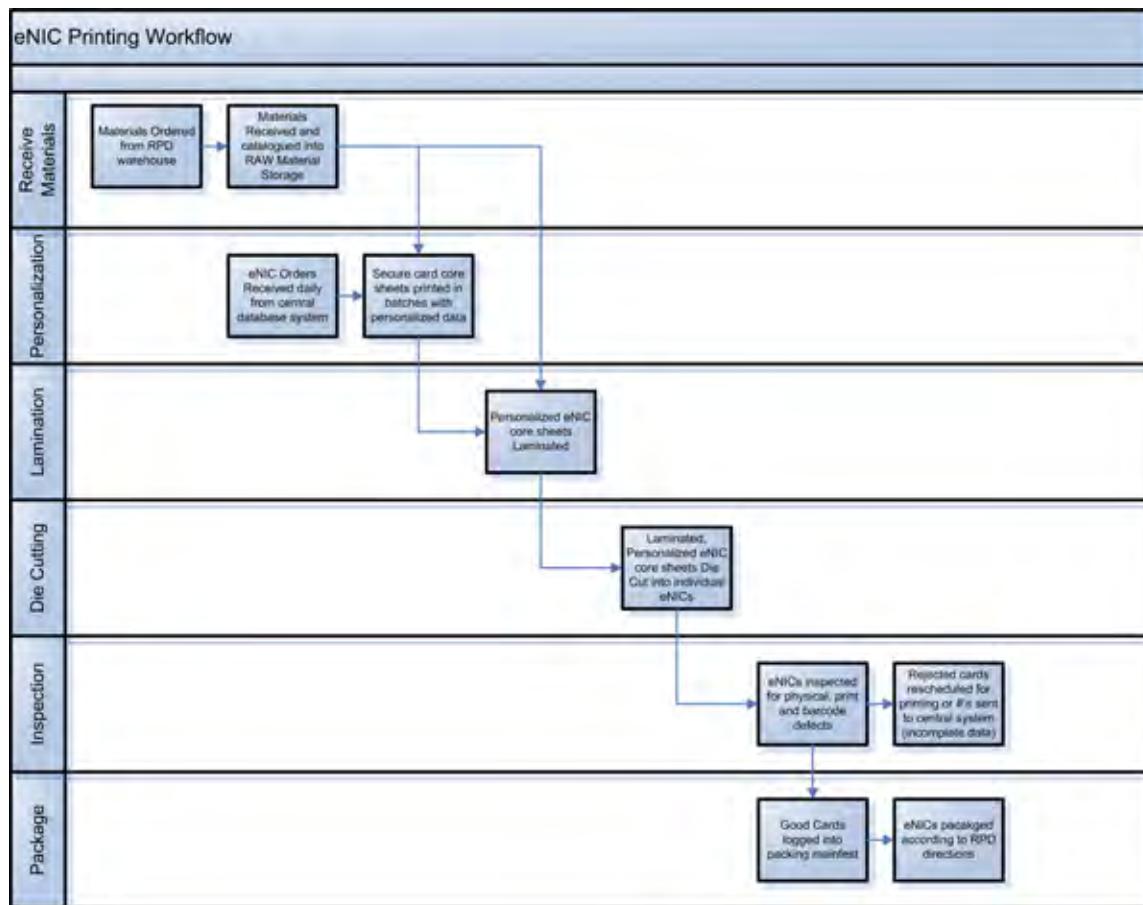
Figure 3-12 eNIC Personalization Workflow

3.9.10 Man-power requirement for the card personalization system operation

The Main Production Facility will require a total of 8 staff (people) for normal operation. The training concept to be employed will be to 'train the Supervisor' and Machine Operators on multiple pieces of equipment to maximize production efficiency and to provide redundancy of skills within the Facility.

Staff Position	Count	Trained to operate	Education	Experience
Center Manager	1	Overall responsibility of production management, logistic control, administration, customer coordination and relationship management	Bachelor's Degree, Industry Experience and Training	2 Years Industry Experience
Supervisor	1	Production Control System, Indigo Printer, Laminator, Die Cutter, Inspection System, Labeler	Higher Diploma /Diploma In Technology, Industry Experience and Training	3 Years Industry Experience
Operator 1	2	Production Control System, Indigo Printer, Laminator, Die Cutter, Labeler	Certificate of Technology, Industry Experience and Training	1 Years Industry Experience
Operator 2	2	Laminator, Die Cutter, Inspection System, Labeler	Certificate of Technology, Industry Experience and Training	1 Years Industry Experience
Shipping/receiving/ Packing clerk	1	Labeler	A/L qualifications	1 Years Industry Experience
Helper / Office Aid	1	Office Assistance and help	O/L qualifications	Not Applicable
Total	8			

Table 3-2 Main/Backup Production Facility Manpower

3.9.11   Backup Production Facility

The Backup Production Facility will be sized to handle at least 10,000 cards per day. It is will be equipped with the same print personalization system, including the laminator, die cutter and inspection system, proposed in the Main Facility.

The Backup Facility will be operated for at least four (4) hours each week to ensure the Facility is ready for operation if the operation of Main Facility is interrupted or becomes unavailable. The Backup Facility can also be operated on a completely standalone basis using staff from the Main Facility.

The benefits to the purchaser of our proposed Backup Facility using the same equipment as the Main Facility are:

- Facilitates a smooth transition of production with no interruption
- Trained staff from the Main Facility will be immediately available to operate the equipment in the Backup Facility, again minimizing the possibility of business interruption

Figure 3-10 above shows a basic footprint of the Backup Facility, identifying the outside dimensions for the Facility and the interior dimensions of each work area within the Facility. It also shows the placement of the key equipment within the rooms. The Backup Facility footprint, manpower and equipment complement are identical to the Main Facility.

The Backup Facility production workflow uses the same production workflow as the Main Facility.
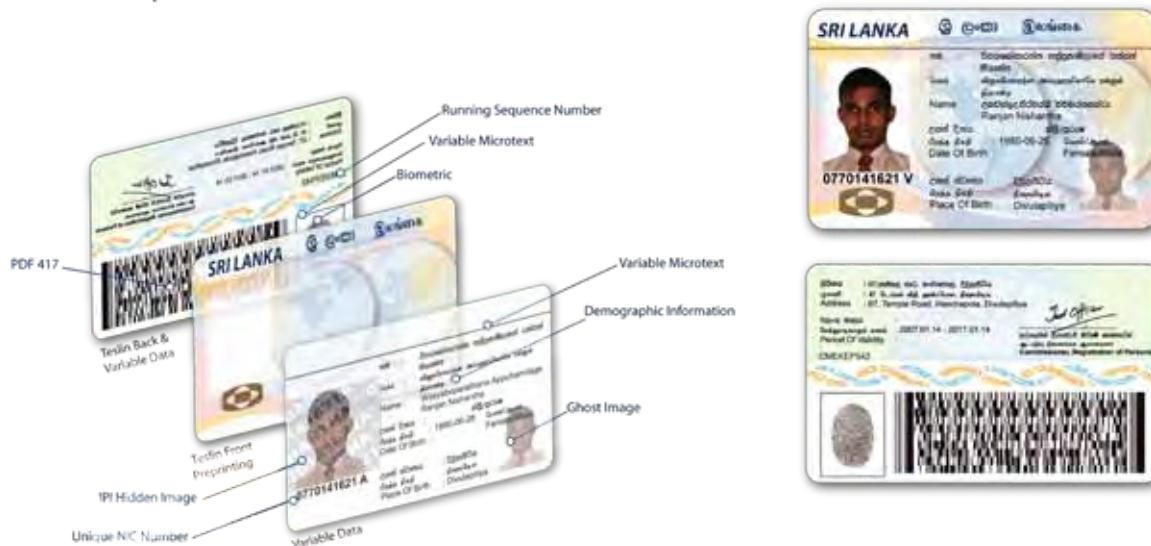
3.9.12   Personalization Information to be Incorporated during the Personalization of the ID Card

In conformity with CR 1.3a, CR 1.3b, CR 2.1 and CR 2.5 of the requirement of the IFB, the personalization of the ID card including security features will be done on the "inner Teslin layer" of the Card body using Indigo wet-offset technology of the Hewlett Packard Corporation of USA. The Card Construction will then be completed by laminating two 250 micron thick PET sheets to both sides of the printed Teslin layer,

providing utmost security and protection to the printed data. Therefore, all personal information and pre-printed security features will reside under the two 250 microns thick PET layers after fabricating the final Card. This methodology of Card fabrication/construction will fully conform to the CR 1.3 of the requirement of the IFB.

Variable Data Graphic Illustration

· **Textual Information**

In compliance with the requirement CR 1.3a as set out in the RFP, all the textual information/data will be printed on the ID card in English, Sinhala and Tamil using typefaces specified by the purchaser. A 25 mm x 35 mm Color Photograph of the Applicant will be in available in either 300 dpi (or 600 dpi) resolution as described in the earlier section. The following minimum information (but not limited to) will be printed on the card during the personalization;

- Unique NIC Number
- Holder's full name in three languages and other information in Sinhala and Tamil
- Date and Place of Birth
- Address

- **2 Dimensional Barcode**

  The PDF417 barcode employed on the eNIC will contain the individual's name, address, date of birth and other data as specified by the RPD (preferably including the Running Serial Number of the card) not to exceed the maximum limit of 2,000 characters (2K bytes) as defined in the PDF417 standard. The PDF417 code employed will contain error correction to increase its readability under harsh conditions consistent with the environment and the anticipated 10 year lifetime of the card. The exact format of the data fields within the PDF417 barcode is defined by the RPD and the barcode on our proposed card will comply.

  The barcode is printed on the inner Teslin layer as part of the personalization process.

- **Personalization Security Features Incorporated**

  In order to maintain the highest level security and integrity of the new Secure eNIC Card of Sri Lanka, we will incorporate a several high security features during the personalization print process. The proposed personalization security features are unique to the applicant and constructed using the applicant data. The resulting finished eNIC card will offer the utmost in security and integrity following the personalization process.

  The personalization security features which will be incorporated during the

  Card personalization process are as follows;

  - Invisible Personal Information (IPI)
  - Variable Micro-text printing
  - Shadow (Ghost) Image
  - These features were described in detail earlier in this proposal.

3.9.13   Handling of Personal Data

Following is our understanding related to how personal data will be received from the RPD. Each day, NIC card order batches will be transmitted from the central system to the Main Printing & Personalization Facility for processing. This data will be sent via a secure network connection utilizing PKI encryption and include a full audit trail.

Once the data arrives at the proposed facility, it will be stored on our proposed local server (Production Control System) which itself is secured via username and password. To print the NIC card core personalized sheets, the Digital Press system will access this secured local server on a batch-by-batch basis.

Once each card has been printed, laminated, inspected and passes inspection, a record of that card's completion is transmitted back through the secure, encrypted network to the central system. If a card fails inspection in such a way as to require complete reprocessing by the central system, a record will be sent via the secure, encrypted network to the RPD central system requesting reprocessing.

On a basis determined by RPD, the personalization data stored on the Personalization System(s)/Server(s) for Cards already produced will be destroyed. It is planned that a RPD representative will witness the destruction of these records. Logs for the destruction of these records will be maintained in the Main Facility.

3.9.14   Personalization and Printing Application Software

Our proposed Personalization System will utilize the following Application Software:

§   Production Control System software (Windows XP + MS Office + Epic Lanka security software + Reporting Software)

§   Digital Press system Software (Windows XP + Epic Lanka Security software + HP Indigo press software + HP Yours Truly Designer software)

§   Inspection System software (Windows XP + inspection software + Epic Lanka Security software)

§   Packaging System (Windows XP + MS Office + Epic Lanka Security software + Label Maker software)

i.   Production Control System software

The Production Control System software will provide the capability to communicate through the secure router with the central system computers/database. It is the means by which printing/personalization production order batches are received and status of each of the NIC production orders is reported. In addition, this system provides software for the reporting as described in the following section.

<u>Reporting Capabilities</u>

Reports will be available on the Facility Production Control System for the following:

· Cards Order Summary
  § Selection Criteria
    § date/date range or
    § Batch Number
  § Data reported
    § Number of cards ordered
    § Date/time of order
    § Batch Number(s) and count within each batch
    § Date/time cards were produced
    § Number of cards produced

§   Operator Name(s)

- Digital Printer Operator
- Inspection System Operator
- Packaging Clerk
- Delivered to RPD agent name

· Card Search

§   Selection Criteria

§   date/date range or

§   Batch Number

§   Running Serial Number (Batch + batch card number)

§   NIC number

§   Data reported

§   All personalized data for the card(s) requested excepting the graphical components (photo, etc.)

As each batch and card completes the digital personalization step and the inspection step, the log data (date/time, operator, success/reject, etc.) associated with the cards will be transmitted back to the RPD central site using the data exchange methods outlined in the BPR/SRS for data interchange. With this information, the central site will also be capable of producing these reports.

· Inventory Control

§   Selection Criteria

§   Material Type (s) [Top laminate, card core stock, bottom laminate]

§   Data reported

§   Amount on hand

§   Re-order limit(s)

§   Projected consumption rate(s)

§   Projected date for next transfer order from warehouse

ii.   Digital Press System software

The Digital Press System software will provide the capability to access the Production Control System (local server) to retrieve the production order batches and

then merge them with the printing template to produce personalized card core sheets. The template will be generated off-line using the HP Yours Truly Designer software, but stored on the Digital Press System for this data merging process.

iii.   Inspection System software

The Inspection System software will provide the capability to define inspection templates and utilize them in the automated inspection process. This software will also manage the audit of accepted and rejected cards and will permit the reporting of this data back to the Production Control System.

iv.   Packaging System Software

The Packaging System software will provide the capability to produce the finished cards package labels and manifests needed to transfer control of the finished, accepted cards to the RPD.

3.9.15   Logistic Management for Supply of Materials and Consumables

As stated earlier, the proposed eNIC Card construction consists of 3 layers –

·   Top – laminate with security features (OVD)
·   Core – security pre-printed Teslin for print personalization
·   Bottom – laser-receptive laminate without additional security features

The security pre-printed and serially numbered Teslin Core of the eNIC Card will be shipped from OpSec's factory in the USA in batches of 21 Cards affixed together as a Sheet using security-sealed packages containing 50 batches in each pack (1050 nos. Cards). When multiple Cards are affixed as a sheet, it offers better protection against theft and unauthorized manipulation (under this scenario, it is not possible to steel individual pre-printed cards for unauthorized personalization). 06 of such packs of 50 card batches will then be packed in to another larger hazard-free packaging (to

make 300 batches in one large package). Each package of batches will be properly labeled with the package number, batch number, running serial numbers of the cards included, etc. for internal auditing, stock keeping and logistic management.

The Top and Bottom laminate material layers of the eNIC will be shipped in roll format for use on the Laminator.

All materials will be counted, packaged and security-sealed at OpSec's factory prior to shipment. The packaged materials will then be boxed, and the boxes will be security- sealed prior to placement on shipping pallets. Complete manifests will be provided with each shipment including running serial numbers of the Cards, batch numbers of the cards, etc. Shipments will be made via secure carrier to a designated RPD warehouse in Sri Lanka for secure storage until needed by the Main or Backup Production Facility. Once the materials are delivered to the RPD, they will be under the custody of the Government of Sri Lanka. These raw materials in original, unopened security packaging will be transferred via a secure carrier or RFP approved vehicle from the RPD warehouse to the Main or Backup production facilities when needed for production.

An electronic copy of the raw material shipping manifest will also be transmitted to the RPD main office and to the Main Factory to ensure that each shipment arrives as scheduled and to provide the means to detect any diversion/tampering of the raw material inventory. In addition, the list of serial numbers of Cards so delivered will be up-loaded to the main production server and the central database for production controlling and auditing purposes.

OpSec will maintain a record of all shipments and use this information to help estimate future production needs to enable raw material planning and staging to help ensure the RPD enjoys a consistent, stable and uninterrupted flow of raw materials for the eNIC Card Personalization Facility.

3.9.16 Destruction of Waste Material

Any used or damaged secure materials used in the production of the eNIC Cards will be shredded at the end of each day in the Facility, and stored in a secure and hazard-free location within the Facility. On a regularly scheduled basis (weekly) the shredded, secure materials will then be destroyed/disposed in accordance to best local practice for security waste materials, most likely through incineration witnessed by authorized person from the Main Facility. A certificate of destruction will be prepared and logged in at the Main Facility for each waste disposal of security materials, and the certificate will be available for inspection and review by the RFD main office or there authorized representative.

3.9.17 Physical Security and Access Control for the Personalization System

The proposed eNIC Card printing and personalization process/work floor will be fully and comprehensively protected by both electronic and physical security. All the users of the Printing and Personalization system will be properly authenticated using the Epic SecureData PKI Security Policy which will be implemented for the eNIC project. Every user of the system will be provided with a X.509 Version 3 standard Private Key, Private Key and a Digital Certificate using the Epic's Central Certification Authority (CA) after properly registering at the Epic Registration Authority (RA). All Hardware Components that are used in the system also will be certified by the Epic CA ensuring no unauthorized components are used in the system. The Private Key, Public Key and the Digital Certificate will be stored in a Secure Smart Card Token, without which the access to the printing and personalization system is denied. All activities of the users/operators will be securely logged in an Audit File residing in a Secured Database after properly encrypting. These security protocols will ensure that no data/record can be deleted, modified of changed without the proper authorization and also recording in the secure audit trail database.

Access to the Security Token will be controlled via a password of the Token owner. The operator name and date/time of login and operation will be captured and saved/archived for audit and reporting purposes in the secure database.

Within the Personalization and Printing Facilities, there will be four (4) operations that will be controlled in this fashion – Inventory Management, Card stock personalization (on the digital press), Card Inspection, and Card Packaging/Card transfer manifest creation. The Lamination and Die Cutting operations are done using machinery that requires data manipulation, reading or transfer.

A comprehensive and detailed reporting capability (activity, user, time, date, approval/authorization, outcome, changes made, etc) will be available with the system for logistic control and administrative purposes indicating every activity of the printing and personalization system.

Please refer to Section 3.2.7 in this document for a detailed description of the PKI based Security Policy that will be provided with our solution.

Section 4: Project Approach and Methodology

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4.1   Our Approach

In conducting e-NIC Implementation project, we will use the following approach. The required stages mentioned are mapped to our Application Development Methodology phases as indicated below:
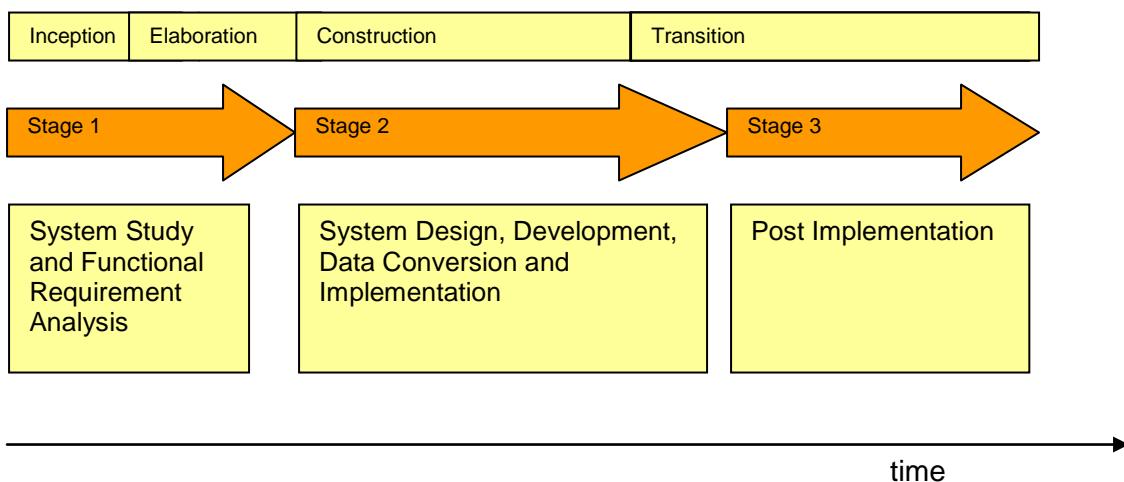
Figure 4-1 Application Development Methodology

4.2   Our Project Management Methodology

4.2.1   PROMISE Project Management Methodology

We are adopting the project management (PM) guide called Project Management Information System (PROMISE), a customized web-based PM guide developed in-house. The Microsoft Project 2000 is used as a standard tool for monitoring and reporting purposes.

PROMISE contains practical applications of project management processes, templates, checklists, and guidelines to complete our Project Management Standard. PROMISE is used and becomes a central repository of project

management documentation and other information necessary for the proper initiation, planning, execution, control and closing of projects across our Organization.

The contents of PROMISE are baselined against the Project Management Institute's Project Management Body of Knowledge (PMBOK2000), and are consistent with the directions of our Organization to adopt it as a governing standard. It is a subset of PMBOK, and adheres to our company's Quality Management System (QMS), and our experience and knowledge in managing projects of various sizes and complexity. In addition, this Project Management Standard in undergoing a series of process improvement activities based on Capability Maturity Model Integrated (CMMI) Project Management process areas requirements. Current compliance is capability level 3. Figure 4-2-1(a) below shows the interdependence among PMBOK2000, Our QMS, Our Project Experiences and Our PMS.
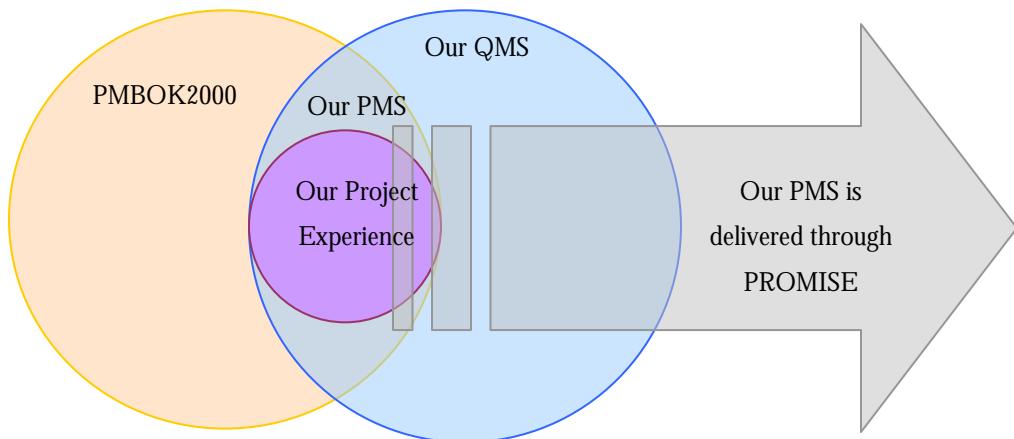
Figure 4-2-1(a) VENN Diagram of PROMISE

Our Project Management Roadmap – a guide to step-by-step deliverable at every stage.
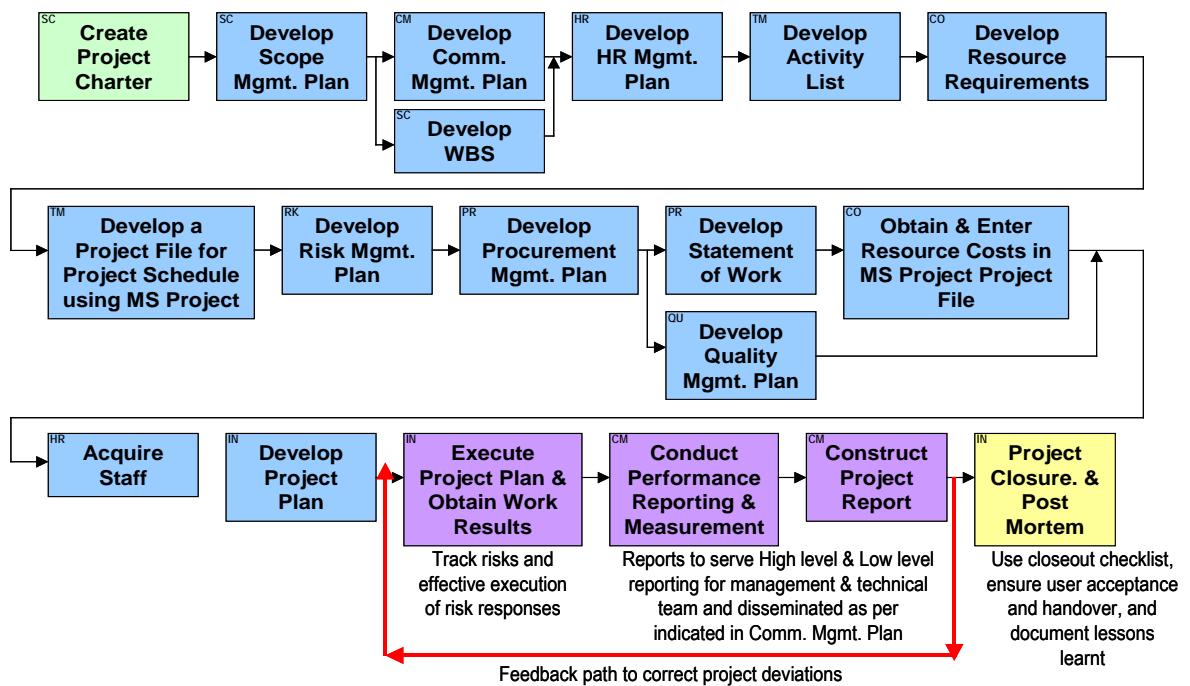
Figure 4-2-1(b) Project Management Roadmap

Screen shot of medium-level view (showing all 37 knowledge area's management stages)
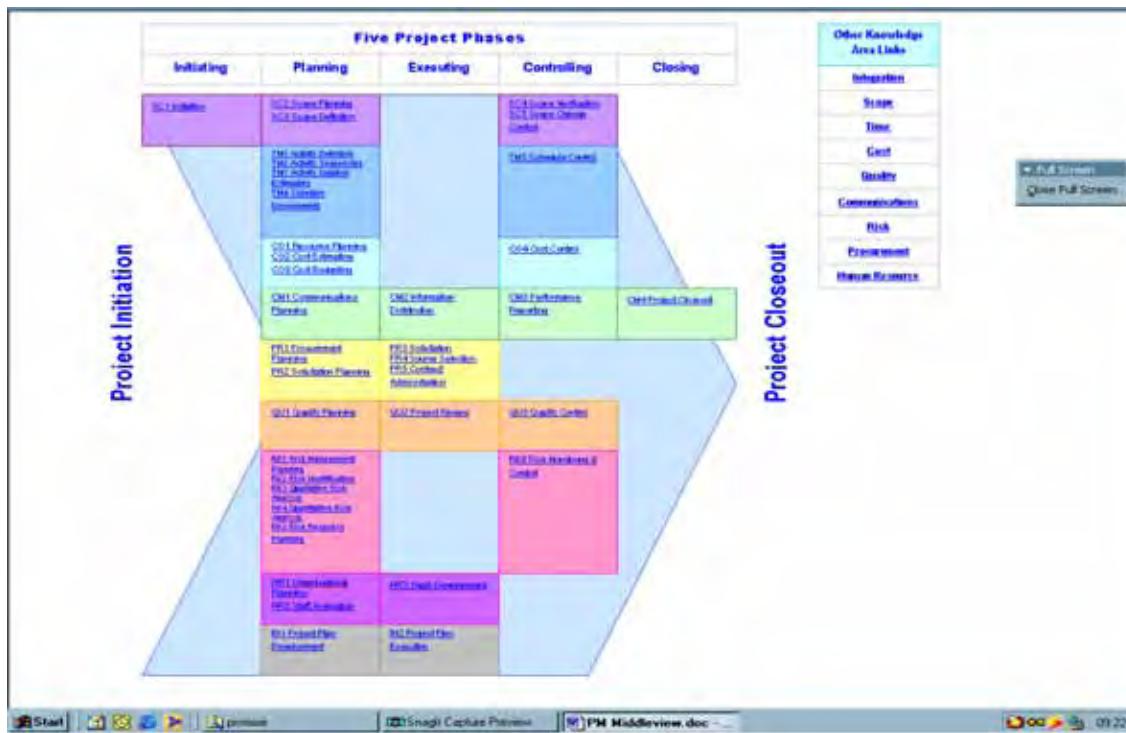
Figure 4-2-1(c)   Project Management Medium Level View Screen

The project management processes are divided into 5 main phases which are as described below:

INITIATING PHASE

Initiating phase is focusing on the project initiation activities such as initializing a project requirement or scope, identifying project manager and relevant stakeholder as well as identification and preparation of various plans managerial and technical plan.

Basically in this phase, project stakeholder shall clearly provide the product or service description that this project undertakes to deliver. This would include information such as reasons why the project is needed, and information on the background leading to this project.

PLANNING PHASE

In planning phase, upon confirmation of the project requirements, project manager shall prepare and perform various type of planning activities which include project estimation (cost, effort and schedule), resource planning, communication plan, risk management plan, quality assurance plan and other managerial and technical plan. This managerial and technical plan shall then be documented in a Project Management Plan, which needs to be developed by the Project Manager.

Description of some of the key planning activities is as follows:

i.   Risk Management Plan
     The Risk Management Plan is developed to promote an understanding of the key requirements for the successful management of the risks associated with a project. Risk management involves the identification, analysis and evaluation of a project's risks and the development of cost effective strategies and action plans to treat those risks.

ii. Quality Assurance Plan
     Quality Assurance Plan involves identifying which quality standards are relevant to the project and determining how to satisfy them. This plan outlines quality activities that promote the quality of the products and adherence to project-defined processes to ensure that the project meets the user's requirements and expectations throughout project life cycle.

EXECUTING PHASE

In executing phase, work results shall be obtained, and this are the outcomes of the activities performed to accomplish the project. It contains information such as deliverables completed and which have not, to what extent quality standards are being met, what costs have been incurred or committed, etc. Project Management Plan shall also be obtained to provide project support information on how the project work should be carried out.

Project performance reporting, which indicate budget spending and project status shall be produced to disseminate project progress information to relevant stakeholders.

CONTROLLING PHASE

Project's attribute such as scope, cost, schedule, quality and risk need to be controlled and measured to ensure that projects are running within the agreed cost and schedule. Any deviation or variance of the above attributes should be handled appropriately by indicating the corrective actions that needs to be done to accommodate the agreeable changes. Project Monthly Progress Report shall be obtained to provide information on project performance to all relevant stakeholders. It may also alert the project team on issues that may cause problem in the future.

CLOSING PHASE

Upon the project achieving its objectives or being terminated for other reasons, projects shall require a closure. Activities such as documenting project results to formalize acceptance of the product of the project by the sponsor, or customer shall be performed. It includes collecting project records; ensuring that they reflect the final specifications; analyzing project success, effectiveness, and lessons learned; and archiving such information for future use.

The overall view of the practices and processes in the project management framework

The summary of project management processes and practices (overall known as management stages) are as illustrated in PROMISE medium- level view below:

4.2.2 Project Management Controls

PROMISE provides guidelines, templates and tools on Time and Quality as shown in the extracts of folders below. The Microsoft Project 2000 is also used to track project time and progress. Folder for Time in PROMISE is shown below.

Figure 4-2-2(a) PROMISE Folder for TIME

Monthly project reviews will be conducted by the Steering Committee to ensure customers' requirements are met and are within the timeframe. The technical aspect of the system development will also be reviewed with customers to ensure that every level of system development satisfies the customer's requirements. Problems and issues will be reported and highlighted in a regular project team meeting. Folder for Quality in PROMISE is shown below.
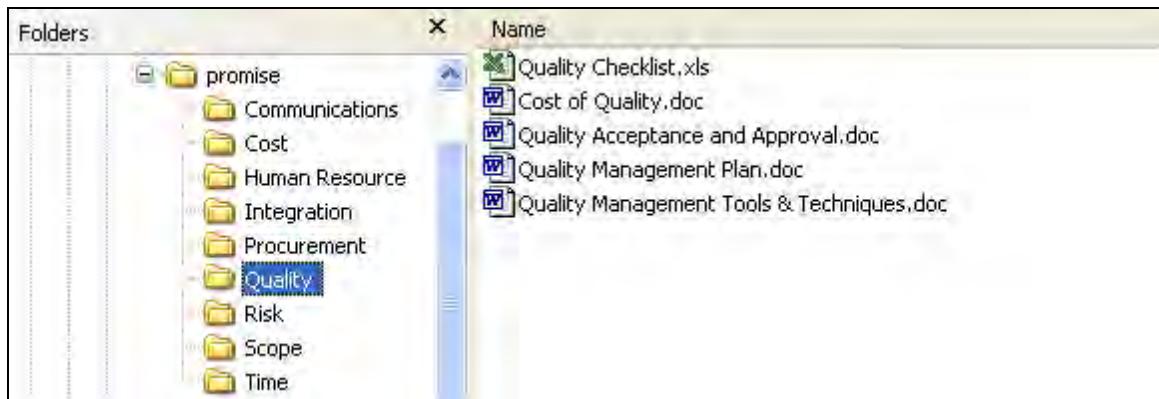
Figure 4-2-2(b) PROMISE Folder for QUALITY

Project Reporting will be done to the Project Steering Committee on monthly basis or as and when required. During this meeting the contractor will provide report on status and progress of the project activities and also to discuss and address high level issues or problems. It will also be the platform for the Project Team to obtain decision and approval for budget or resources.

4.2.3   Involvement and Commitment of User Community

All the employees that may be affected by the implementation of the new Application Software must be involved. Changes must be communicated timely and effectively to ensure commitment and ownership. Commitment to the project should be driven from the highest levels of the RPD. The project sponsors need to be identified at the start of the project and their commitment secured to ensure clear and timely decision-making process.

4.2.4 Availability of Key Users

Key users must be available in accordance with the requirements of the project plan. The project must take priority and assigned tasks completed on time. Advanced planning will be required to cope with the already hectic schedule of users.

4.2.5 Loss of Project Team Staff

Maintaining a knowledge base is a high priority for the ongoing success and support of the project. All aspects of the project would need to be properly documented and maintained to ensure the long-term viability of the project.

4.2.6 Project Monitoring and Reporting

Project Reporting will be done by the Project Steering Committee on monthly basis or as and when required. During this meeting the contractor will provide report on status and progress of the project activities and also to discuss and address high level issues or problems. It will also be the platform for the Project Team to obtain decision and approval for budget or resources.

4.3 Application Development Approach and Methodology

Methodology Used For System Development:

In any application development life cycle the initial phase prior to the actual development itself is important and critical to the successful implementation of the final solution. This early phase involves planning, requirements, analysis and design to deployment of what the final product will be. The people involve in a project start-up must be equipped with good observation skills, interviewing skills, the ability to manage users and most importantly, must be guided by some form of methodology. A methodology acts as a guideline on what should be done next and to stay focus.

In this respect, our proposed Methodology for e-NIC overall application development life cycle is the contractor Application Development Methodology. To achieve a common language and understanding of the application development processes and phases within a project lifecycle, contractor has adopted object-oriented software engineering approach. It captures many of the best practices in modern software development. Its goal is to ensure the production of high-quality software that meets the needs of its end users, within a predictable schedule and budget.   The approach is shown below.
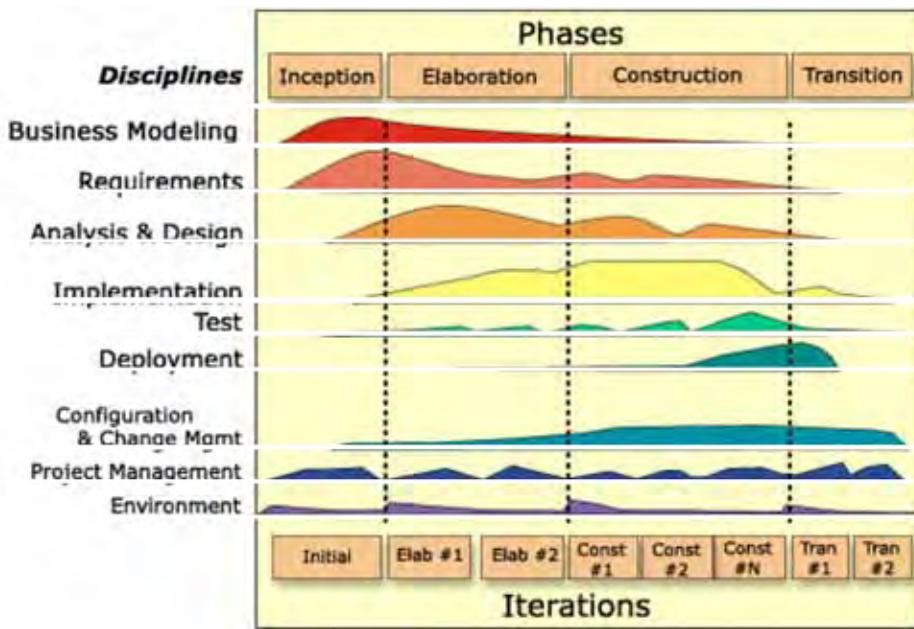
Figure 4-3(a)   Application Development Methodology Overview

The application development lifecycle consist of four phases i.e. the Inception, Elaboration, Construction and Transition phase. These phases are support by six main disciplines i.e. the business modelling, requirements, analysis and design, implementation, test, and deployment. The deliverables to be produced will be spread throughout the project life cycle.   In the early phase of project development, the deliverables will be in the form of reports and documents. Towards the end of the project, the deliverables will be the system itself and reports related to the testing of the solutions.   Finally an acceptance will be

required as confirmation of the system's conformance to the user's requirements.

The following table shows the software development disciplines, its activities to be performed and its deliverables.

Discipline	Activities	Deliverables
Project Management	Conceive new project Evaluate project scope & risk Develop SDP Monitor and control project	Software Development Plan
Requirement	Describe As-Is current business Refine roles and responsibilities Identify To-Be improve business process Analyze problem Define system requirements Manage change requirements	Software Requirements Specification (SRS)
Analysis & Design	Define the architecture Design system Design database	Software Design Document (SDD)
Implementation	Structure Implementation Model Plan the Integration Implement Components Integrate Sub-System	Application Source Codes
Test	Plan test	Software Test Plan

Discipline	Activities	Deliverables
	Design test System testing	(STP) Software Test Result (STR)
Deployment	Plan Deployment Develop Support Material Manage Acceptance Test Package Product	Deployment Plan (DP) Training Plan (TP) Software Product
Environment	Prepare Environment for the Project Support Environment during Iteration	
Configuration & Change Management	Create Project Change Management Environment Change & Deliver Configuration Manage Change Request Monitor and Report Configuration Status	Change Request

Figure 4-3(b)   Application Development Activities and Deliverables

Deliverables:

The following summarizes the deliverables required of a project adopting the methodology:

- **Software Development Plan - SDP**

  The Software Development Plan is a comprehensive, composite artifact that gathers all information required to manage the project. It describes the approach to the development of the software, and is the top-level plan generated and used by the managers to direct the development effort.

- **Software Requirements Specification – SRS**

The Software Requirements Specification (SRS) focuses on the collection and organization of all requirements surrounding the project. It defines all functionality, behavioral requirements, external interfaces, attributes, and performance of the application system. This document shall be used in designing the system.

- **Software Design Document – SDD**

  The Software Design Document provides comprehensive technical system design that includes a collection of classes, relationships, use-case realizations, diagrams, and other packages. The technical team shall use this document for coding purposes during construction phase.

- **Software Test Plan – STP**

  The Software Test Plan also known as the Testing Plan documents the overall structure and objectives of the test and evaluation program. It defines the test cases that include the execution conditions and expected results developed for a particular objective. Additionally, the test plan identifies the strategies to be used to implement and execute testing, and the resources needed. This document shall be used in preparation for User Acceptance Test.

- **Software Test Result – STR**

  The Software Test Result describes the test result and test summary obtains from the testing session. The testing shall be carried out in accordance to the Software Test Plan above. The completion of this phase shall be a signed document by the system owner. Once this phase is completed, the system is ready for pilot implementation.
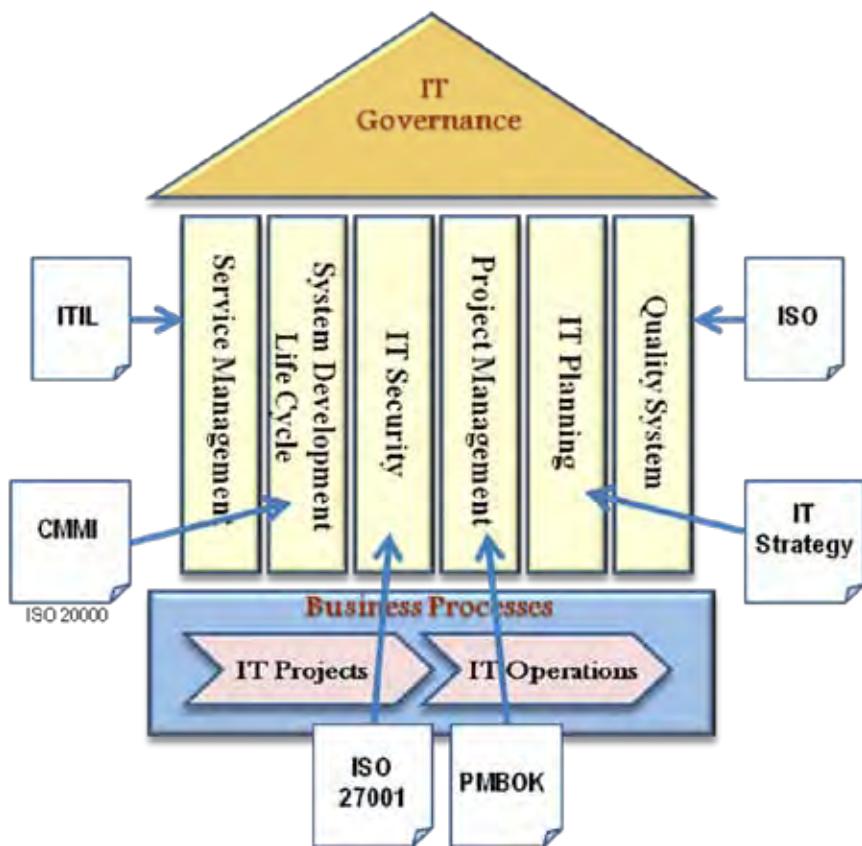
- **Deployment Plan – DP**

  The Deployment Plan describes the set of strategy on how the developed product is going to be deployed effectively to the user community. Also defined are the roles and responsibilities of all the parties involved. Detail activities including the preparation before, during and after deployment and the deployment schedule for roll out.

4.3.1 IT Governance (ADVICE)

The main benefits of good governance are control and transparency. It is through the establishment of clear roles, responsibilities, accountabilities and records of actions taken that the IT operations will move forward and delivers increased value.

The governance model that we adopt provides a holistic approach to the management of RPD which will improve consistency and alignment between government service delivery priorities and IT planning and investment.

The governance model contains collection of principles and practices that guide the correct application and delivery of IT components. The scope of responsibility of IT governance has been summarized covering the following areas:-

1. Strategic alignment - With focus on aligning IT strategy and planning

2. Value delivery – Optimizing service delivery, processes, quality and speed with expense.

3. Risk management – Addressing and ensuring the safe guarding of IT assets.

4. Resource Management – Optimizing knowledge, IT environments, structures and establishing accountability.

5. Performance Management – Monitoring IT services and tracking project delivery.

We look forward to assist RPD to implement best-practices processes and help in align IT resources to optimally support the mission of the department. As government continue to move toward IT as a service provider, process efficiency and cost containment become paramount. We look forward to sharing in government successes with the adoption of our IT Governance model to drive many of RPD's new IT initiatives.

By improving the processes around IT, RPD can begin to:

- improve resource utilization

- eliminate redundant work

- improve upon project deliverables and time

- improve availability, reliability and security of mission critical IT services

- justify the cost of service quality

- provide services that meet business, customer and user demands

- integrate central business processes

- document and communicate roles and responsibilities in service provision

- learn from previous experience

- provide demonstrable performance indicators

RPD will benefit greatly from the establishment of clear, consistent, repeatable, documented and auditable IT processes.

4.3.2 Prototype Plan

It is expected that prototype of the e-NIC system will be presented to RPD for acceptance before proceed with production of the system. The focus of the prototype will be more on the overall design of the system, the user interface, look-and-feel of the system and the general workflow of an application.

4.4 Test Plan

Testing is a crucial part of any system development and/or implementation. It is there to ensure that all components of the system are reliable and robust, and that the system delivered matches the customer's requirements. Testing does not guarantee that a system has no errors. A comprehensive testing process will, however, reduce the probability of errors occurring during system use. Also, the more comprehensive the test plan, the earlier errors are detected. Therefore, the establishment of and adherence to an extensive test process will go a long way towards ensuring the quality of the produced system.

This document describes the plan for testing the e-NIC system. The Testing Plan shall include the following components:

- Testing Objectives
- Testing Scope
- Testing Environment
- Testing Approach
- Testing Types
- Testing Schedule
- Test Result and Documentation

4.4.1 Testing Objectives

This Testing Plan shall support the following objectives:

- Identify existing project information and the software components that should be tested.
- List the recommended test requirements.

- Identify the required environment, resources and provide an estimate of the test efforts.

- Recommend and describe the testing strategies to be employed.

- List the deliverable elements of the test activities.

4.4.2 Testing Scope

The project will undergo the following type of testing:

- Functionality

- Usability

- Security

- Performance – (response time)

The target test item covered the following set of items:

- Application module built for each agency and joint program

- Interfaces of subsystem within agency as well as across agencies

The above item will undergo the following type of testing i.e. functionality, usability, security as well as response time.

Based system hardware or infrastructure shall be tested based on its ability to operate/function.

4.4.3 Testing Environment

Initial preparation shall be done before the testing can begins. Establishing the testing environment for e-NIC System shall includes the setting up of the physical test sites, the base system hardware, software and hardware items and resources involved.

- **Physical Test Sites**

  The test sites shall be set-up according to the acceptable specification that is closest to actual production site.

In addition the testing should also be executed using known, controlled databases and in secured environments.

- **Base System Hardware**

  All system hardware and the quantity required shall be installed and properly tested.

- **Software and Hardware Items**

  The software elements for the testing shall be set forth. The specific elements of the test system are not fully known at this time. It is recommended that the system simulates the production environment, scaling down the accesses and database sizes if and where appropriate.

- **Resources**

  The aim is to identify the staffing assumptions prior to testing. The role and responsibility for each staff shall be specified to avoid any redundancy.

Role	Responsibilities
Project Manager	Communication with Customer to agree format and scope of Acceptance Test
	Agree acceptance criteria with the Customer prior to commencing Acceptance Test
Business Analyst	Assist Customer with the creation of a detailed test plan
Test Co-ordinator (Business)	Ensure that a detailed test plan is available for test users
	Ensure that bugs identified during Acceptance Test are logged in the Test Log
	Ensure testing takes place within agreed timeframes

4.4.4 Test Approach

This section describes the general testing approach and the specific tests planned for each testable requirement as adopted in our Application Development Methodology. The test requirements are the test levels, test condition, test cases and test data.

Test Level

Various level of testing will be done to enforce that the project is fully comprised of the user's requirements.

- Unit Testing

  This kind of testing is primarily done by the developer at the development site.

- System Testing

  System testing is done to check whether the system adheres to the functionality and the lifecycle of the data follows the intended cycle and reaches the final stage.

- User Acceptance Testing

  Similar test scenarios as system test, but the testing will be performed with the end users. If bugs found it shall be recorded and monitored. The purpose of the test is to ensure that the system meets the users' requirements, and the specifications. It is to test and finalize the overall functionalities, performance and interfaces of the whole system and main focus is on final readiness for the system deployment.

  When all the testing has been accepted, the Acceptance Test form is prepared and sign by Project Sponsor or User Representative and Project Leader (if required).

Test Cases & Test Condition

The test cases with test conditions and expected test result shall be listed according to testing types. Developing comprehensive test cases is a very involved process, but essential for final success of the system development. Without test cases, a controlled test process cannot be carried out. Uncontrolled testing cannot ensure that every feature of the system is fully tested.

The test cases shall be listed according to the following areas:

- Functional Testing - Detail the test cases for Functional testing.
- User Interface Testing (Usability) - Detail the test cases for User Interface testing.
- Security and Access Control Testing - Detail the test cases for Security and Access Control testing.

The sources for the test scenario shall be based on the requirements as stated in the software requirement specification (SRS). The black box testing methodology (testing the component without getting to view the lines of codes) shall be the main approach in performing the test.

As for the base hardware (infrastructure) and its operating software, the test condition shall be based on its ability to operate/function accordingly.

Test Data

The test data for each test case shall be prepared earlier before the testing. Sets of test data for different test condition are required to ensure that all condition is fully tested.

4.4.5 Testing Types

The testing types are the Functional Testing, User Interface Testing (usability), Security and Access Control Testing and Performance testing (if critical for a system)

- Functional Testing - focus on any requirements for test that can be traced directly to business functions and business rules.

- User Interface Testing – verifies a user's interaction with the software. The goal of UI testing is to ensure that the User Interface provides the user with the appropriate access and navigation through the functions of the target-of-test.

- Security and Access Control Testing – focus on the application-level security and system-level security. Application-level security, including access to the data or business functions. System-level security, including logging into or remote access to the system.

- Performance Testing – focus on the response time requirement of the system, when the system is concurrently accessed by a number of users.

4.4.6 Testing Schedule

The detail of test schedule shall be planned during the early phases of the project lifecycle when a list of target test items is confirmed. Mainly all test stages/level will be conducted during the stage 2 – System Design and Development, Data Conversion and Implementation.

4.4.7 Test Results and Documentations

The results of the Test process are the following deliverables:

- Test Plan

  The test plan shall be used to document the plan for test resources, test scheduling and other test management activities.

- Test Logs

The Test Log shall be used to record and report test results and testing status by the system owner.

- Test Evaluation Summary Report

The Test Evaluation Summary organizes and presents a summary analysis of the test results and key measures of test for review and assessment, typically by key quality stakeholders.

4.5 Project Reporting & Problem Solving

4.5.1 Project Performance Reporting Plan

To ensure that e-NIC project team is constantly updated with the progress of the project, we have outlined a structured Project Performance Reporting Approach and Plan.

4.5.2 Progress Reporting Approach

The Project Manager would monitor the activities against the progress chart and note any deviations. The deviations would be queried for explanations and the appropriate remedies will be implemented in order to maintain nearest to or to actual progress schedules.

4.5.3 Project Performance Reporting Plan

The Bidder proposed Project Performance Reporting Plan includes:

Type of Reporting	Description
Status Meetings Project Team	The weekly reviews are short discussions and briefings on the status of current and future activities of the e-NIC *project*. This serves as inputs for the Quarterly review meetings. Typically, these meetings are attended by the respective technical team (both The Bidder and RPD).
Project Steering Committee	Minimally this committee shall meet monthly. But expected to be more frequent at the start of each of the

Type of Reporting	Description
Meeting	stages/phases. During this meeting the Bidder will provide report on status and progress of the project activities and also to discuss and address high level issues or problems. It will also be the platform for the Project Team to obtain decision, policy and approval related to scope, cost and timeline. Agency level risk shall be highlighted in this meeting as well.
Main Steering Committee Meeting	Project Performance Reporting will be done to the Main Steering Committee on monthly basis or as and when required by the Steering Committee. During this meeting overall progress of e-NIC project shall be presented. Issues/problems/Risks relating to e-NIC System as a whole shall be highlighted and resolved in this meeting.

Figure 4-4 (a)   Project Performance Reporting Plan

4.5.4 Issue/Problem Management Plan

The Bidder would ensure that any activities or deliverables, which do not conform to original plan or requirements, are controlled. The management of Issue / Problem Management Plan will include:

- Taking corrective action to eliminate the detected non-conformity. This is subject to re-verification to demonstrate conformity to the requirements
- Authorizing its use, release or acceptance under concession by the Responsible Manager and, where applicable, by the customer; and/or
- Preventing its original intended use or application.

4.5.5 Issue/Problem Management Flow

Our Issue / Problem Management practice is illustrated in Figure 5-4(b).
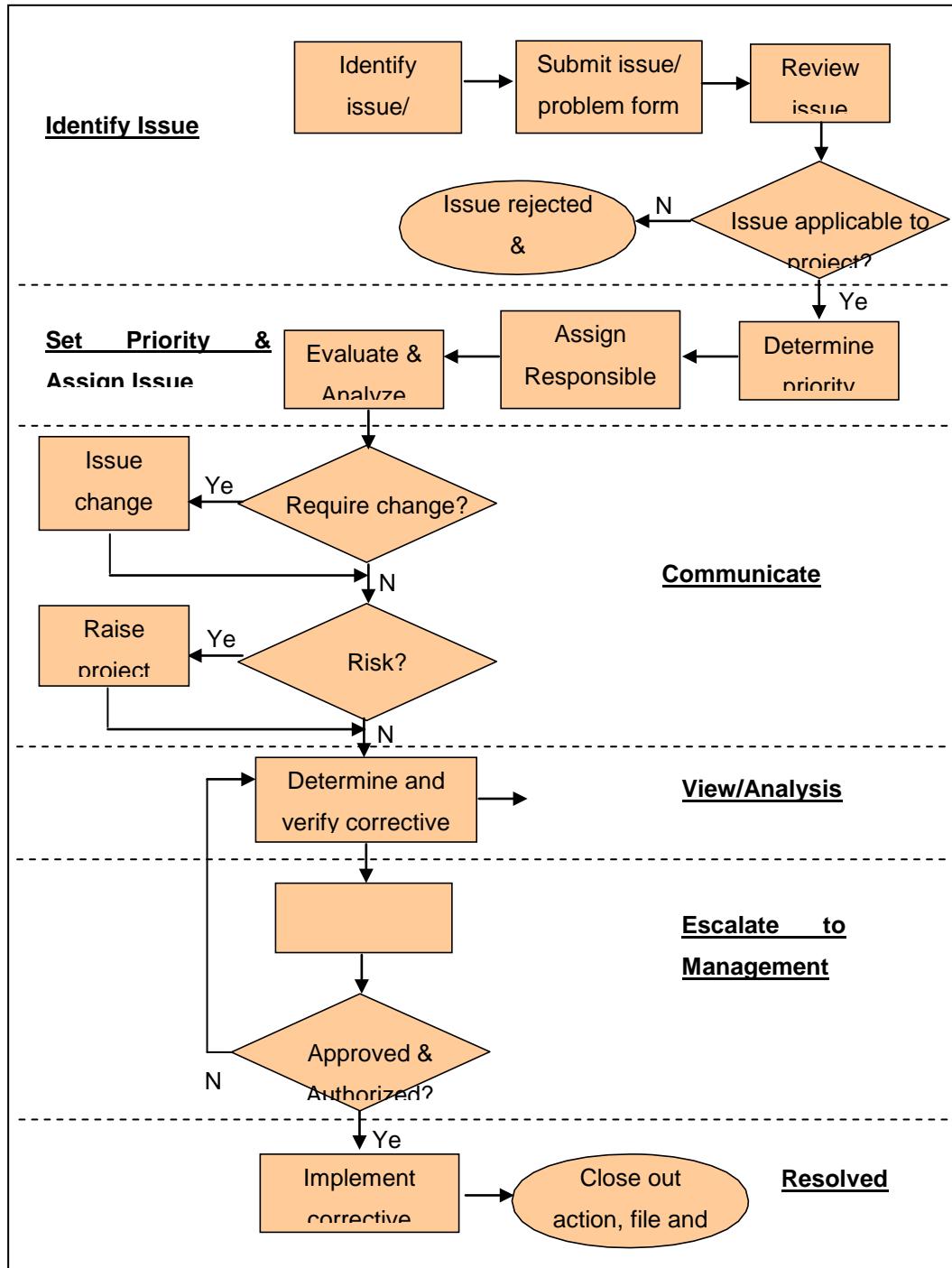
Figure 4-4 (b)   Issue Management Flow

Activity	Description
Identify Issue/Problem	The Bidder empowers any team members with the authority and responsibility to report non-conformities at any stage of a process in order to ensure timely detection and rectification such as disposition of non-conformities. The tender Project Manager confirms nonconformity and the need for corrective action to resolve the nonconformity. The part or item that is nonconforming is held from further processing, use or application.
Set Priority	Every Issue/Problem recorded should be allocated a priority based on the following: q Impact of the issue/problem q Urgency for the solution/remedy This priority rating is used to decide which changes should be discussed and assessed first. This can be discussed during the Technical Review Meeting or alternately an ad-hoc meeting can be called if necessary.
Assign Issue	Issues/ problems are assigned to Responsible Manager who has direct responsibility for the nonconforming activities and, or process. The Responsible Manager would ensure that corrective action is taken and necessary resources are committed to resolve the nonconformance. The Responsible Manager would evaluate, investigates, and determine the cause/root-cause of the identified problem.
Communication	Based on the analysis from the related functional team, the Responsible Manager would be able to confirm whether the issue requires change and if risk is involve. Should there be any change, the Responsible Manager

Activity	Description
	would issue a change request, which will go through the change management process. The Change Manager would provide his/her analysis and recommendation. Should there be any significant risk involved, the Responsible Manager would raise project risk.
View/Analysis of Issue/Problem	The Responsible Manager would then allocate resources from related functional team members for analysis of the issue/problem. They would determine potential corrective action. The Responsible Manager will then, determines degree of corrective action required depending on the complexity of the situation and the risk involved.
Escalate to management	The issue/problem will be escalated to the management for proper approval and authorization before any significant corrective action takes place.
Resolved	Once authorized, action plan proposed is implemented. The Responsible Manager ensures that implementation is carried out and all affected personnel are notified of the action taken. The Corrective Action entails that the nonconforming product is required for segregation to prevent misuse and then it is labeled for easy identification. Labeling helps the person in charge for corrective action, perform his task expeditiously. Examples of label that a Responsible Manager can consider are: Rework - Action taken on nonconforming product to make it conform to the requirements. This disposition includes document, system and software 'upgrades'. For example if a document needs to be amended, the soft

Activity	Description
	copy of the document would be placed in a separate 'rework' folder.
	Use-as-is - Approving the use of nonconforming product without resort to rework. For example if a Personal Computer (PC) is found nonconforming by the staff using it, the PC can be utilized for attendance, printer, storage of shared files and etc.
	Return to Vendor - Action taken to return nonconforming product to the vendor in accordance with contract provisions. For example, purchased goods that are found non-conforming after delivery would be returned to vendor.
	Scrap - Action taken on nonconforming product to make it unusable and remove it from the QMS. For example, if a product/document/system/process is completely damaged or obsolete, it would then be scraped to prevent misuse.
Close Out Action; File and Maintain Documentation	Responsible Manager notifies the originator, and close out the issue and indicates that the nonconformance has been resolved. Configuration Management database/log would be updated for any changes to the Configuration Item (CI).

Table 4-4(c) The Activity and Description of Management Flow

4.6   Software Configuration Plan

The Software Configuration Management Plan defines the implementation of configuration management of a particular software project. The Software Configuration Management Plan provides a framework within which the four primary Configuration Management functions (configuration identification, configuration control, status accounting and audits) are managed. The Software Configuration Management Plan documents the plans for performing configuration management. The configuration management program shall be put into consideration in the earliest stage of project development life cycle. The Software Configuration Management Plan is used throughout the project life cycle.

4.6.1   Environment

Baseline of the project will be available at a specific location that will be defined by the project manager, which will be accessible to project team members. Check in and out mechanism will be used to control the access of Configuration Item (CI) (system) to prevent conflicts when working in team. At any time, there is only one check out or check in of particular CI (system). Once the CI is checked out, that CI will be locked/freezed to ensure that there are no simultaneous modifications to the same CI.

4.6.2   Tool

Currently there is no automation tool planned for configuration management activities.

1. Project Centralized Repository is being used as the repository for document and system.
2. Change Request Log is being used to track change requests.
3. All CIs will be recorded in a Software Configuration Items Log

The Software Configuration Items Log contains relevant information about each CI, such as document or system identification, author/developer, version date, release date and document amendment register (revision history).

4.6.3 Configuration Management Process
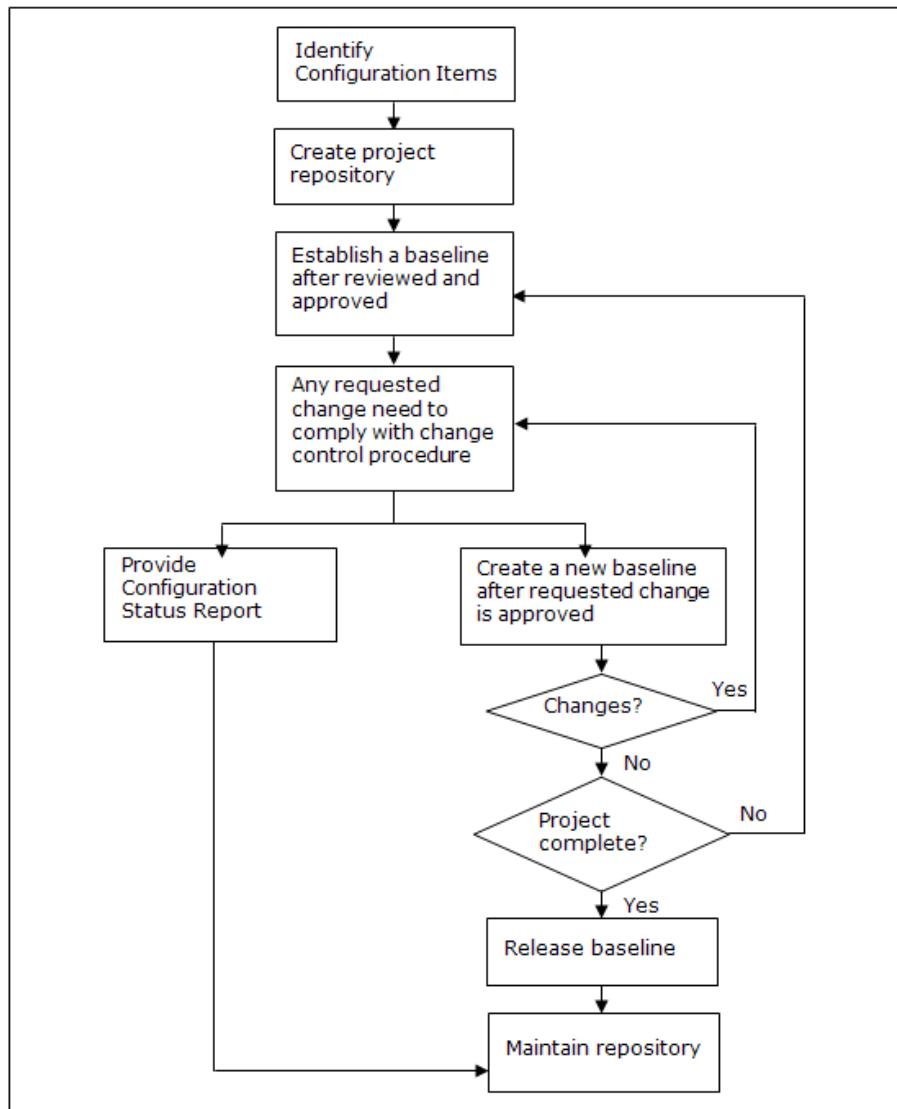
Figure 4-6(a) Configuration Management Process Flow

4.6.4 Configuration Identification

Configuration identification refers to the process of identifying components to be managed as a configuration item (CI) for each developed baseline, assigning

configuration identifier to CI, establishing of configuration baselines and release management.

4.6.5 Identifying Configuration Items

During the project development life cycle, the documentations will be reviewed and entered into the repository. All changes to document and system shall be controlled. The following provides a type of CI to be entered into the configuration management:

Document

- Document

  All documentation deliverables shall be controlled as configuration items.

- System

  The system consists of a library, the module, component and software system which need to be controlled.

4.6.6 Naming convention

Naming convention is a mean for applying a configuration identifier to the document and system. Project Manager will define the format for naming convention at the beginning of the project.

4.6.7 Baseline

During the project life cycle, each CI is to be made into baseline. The CI baseline is kept in the Project Centralized Repository.

The following is an example of baseline stages and its content:

1. Plan
2. Requirements
3. Design
4. Test
5. Release

Baseline	Contents
Plan	Project Management Plan and others project management documentation
Requirements	Business Requirements Specification
	System Requirements Specification
Design	System Design Description
Test	Test Plan
	Test Report
	Test Result Form
Release (Production)	User Manual
	Final Project Management Plan
	Final Business Requirements Specification
	Final System Requirements Specification
	Final System Design Description
	Final Test Plan
	Final Test Report
	Final Test Result Form
	System/Application

The baseline is formally defined by the entry of the CI into Project Centralized Repository. At any time during each of the baseline stages (plan, requirements, design and test), version can be established for any minor or major changes.

An on-going version is maintained in the Project Centralized Repository. The release is established once acceptance test had been done or project is been completed.

4.6.8 Configuration Repository

The CM will establish electronic and physical repository. Project members will be granted various levels for accessing the repository as determined by the project manager. Owner of the CI will control and maintain the copy of the CI that currently being developed or revised in the owner's workspace. Project Centralized Repository and physical repository contain superseded and changes to the baseline.

- *Electronic Repository*

  Project Centralized Repository will be established for maintaining project baseline in a secure environment. The project baseline, whether it is a build or release baseline, will be placed under Project Centralized Repository. The figure below shows a generic structure of Project Centralized Repository for each project.
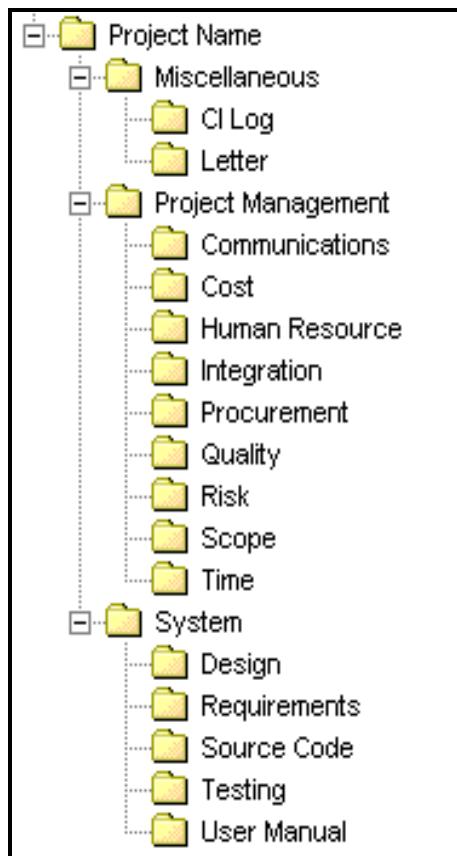
Figure 4-6(b) Generic Structure of Project Centralized Repository

- *Physical Repository*

  Master copies of documents will be retained in a physical file. Approval, disapproval or hold of CR form will be kept under physical file.

- *Change and Configuration Control*

  Configuration Control is the process of managing changes to the baseline. Change Control Board consisting of senior technical representatives, senior user representative is responsible to approve or disapprove of major changes requested.

  The member of the Change Control Board shall be determined at the beginning of the project phase. Only authorized project members who are determined by the project manager are allowed to revise the baseline.

  The following diagram provides an overview of the change processes and procedures to be undertaken in order to effectively manage project-related change.
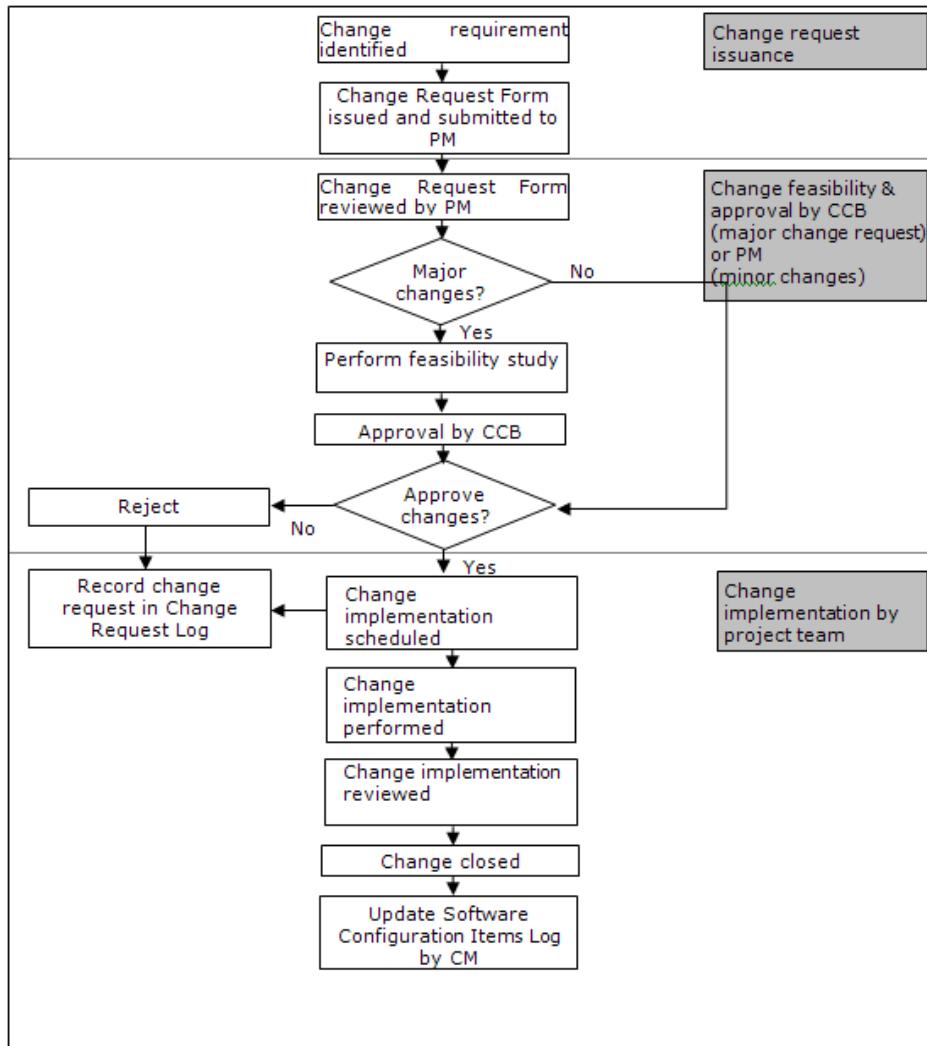
Figure 4-6(c) Change Control Process

Any addition, modification, or deletion to the baseline is considered a change and is subject to change control. Change control procedures ensure that the changes to CIs are made in a controlled manner.

1. Submit Change Request

   This process provides the ability for any member of the project team or client to submit a request for change to the project. The following procedures are completed:

- Change Requestor identifies a requirement for change to any aspect of the project (e.g. scopes, deliverables, schedules, costs, expenditures, organization, etc.).

- Change Requestor completes a Change Request (CR) form, and distributes the form to the PM. The CR provides a summary of the change required, including the:
  o Change description
  o Reasons for change (including business drivers)
  o Impacts of change
  o Supporting documentation

- If the CR form provides insufficient information, the CR form should be referred back to the Change Requestor for further details.

- The Configuration Manager will open a 'Change Request' in the Change Request Log

2. Review Change Request

   This process allows the PM to review the CR and determine whether or not a full feasibility study is required in order for the Change Control Board (CCB) to assess the full impact of the change.

   - The decision will be based primarily on the:
     o Number of change options presented.
     o Complexity of the change options requested.
     o Scale of the change solutions proposed.
     o Identify changes required to any baseline and estimate the effort required to make the changes.
     o Identify changes required to the current work and estimate the additional effort required to incorporate the changes.

   - If the change is minor (change requested does not have an impact on project scope, schedule, resource and cost), PM has the full authority to approve, KIV or reject the request.

   - The following are provided as basic decisions:
     o *Approve*

The change should be adopted in the project. This approval may or may not result in a change in project. For instance, the change may only result in a change of how a particular project goal is implemented.

- o *KIV/Deferral*

  The change has merit, but will adversely affect the current project scope, schedule, or resources. The change is tabled until some future date.

- o *Reject*

  The change is rejected, and does not warrant future consideration.

3. Perform Feasibility Study

This process involves the completion of a full change feasibility study, in order to ensure that all change options have been investigated and presented accordingly.

- PM arranges meeting/discussion with respective project members to analyze the changes and consider the resolution.

- The change feasibility study will involve definition of the:
  - o Change requirements.
  - o Change risks and issues.
  - o Change impact (significant impact on the project scope, schedule, resources and finance).
  - o Change recommendations and plan.

- PM makes a detailed evaluation and recommendation in the CR form.

- All change documentation is then collated by the PM and submitted to the CCB for approval. This documentation includes:
  - o The original Change Request Form.
  - o Any supporting documentation.

4. Approve Change Request

This process involves a formal review of the change request, by the CCB and client.

- The CCB will choose one of the following outcomes regarding the change proposed:
  - o Approve the change as requested.
  - o KIV/deferral the change.
  - o Reject the change.
- The change decision will be primarily based on the following criteria:
  - o Risk to the project in implementing the change.
  - o Risk to the project in NOT implementing the change.
  - o Impact to the project in implementing the change (project scope, schedule, resources and cost).

5. Implementing Changes

   This process involves a complete implementation of the change. This includes:

   - Assigning change task to the owner of the CI and notifying person who will be affected by the changes after the CR form is approved.
   - Identifying the change schedule (i.e. date for implementation of the change).
   - Locking/freezing the baseline (system) in which the changes will be implemented.
   - Keeping CR form in physical file and archive new baseline in the Project Centralized Repository.
   - Testing the change prior to implementation.
   - Implementing the change.
   - Reviewing by testing the success of the change implementation.
   - Closing the change in the Change Request Log

4.7 Training Plan

The Training Plan helps to define, organize, execute, analyze, review and evaluate its training objectives, training strategies and types of training with its

accompanying time line to ensure that target dates are projected, monitored, reviewed and completed. The Training will ensure the smooth assimilation of the new system. The Training Plan should be hand in hand with the Transfer Technology Plan.

4.7.1 Training Strategies

The training strategies are devised in order to have a structured training program for all types of users. These include:

- Identify the target group and participants of each group
- Identify the courses to be attended by the target group
- Execute the training program
- Identify the target group and participants of each group.

The target group for training programs will be identified as follows:

- Management
- Technical Personnel
- Core Team
- End-user

The participants for each group will be identified to facilitate the arrangement of the training logistics. The process involved identifying the number of participants from which target groups.

Identify the courses to be attended by the target group

Courses to be attended will be identified based on the target group such as the following:

- Management

Training for the management group is focused on strategic and tactical usage of IT in improving user's efficiency. The management group will be exposed to

education and appreciation of emerging technologies. Customized training programs will be designed, focusing on operations of the delivered system where emphasis is on the reporting functions of the system in generating important statistical reports.

- Technical Personnel (Operations, Administration, System Maintenance, Technical and Application)

The Technical Personnel of the end-users will be exposed to rigorous training and education to ensure gradual acclimatization and takeover of operations and finally systems development. The project team organization requires the end-user IT personnel mirrors the Contractor's project personnel to provide a hand-holding and hands-on approach to training. Technical hardware and software training are also provided as part of the system acquisition process.

- Core Team

For business points and branch support, the consultant will train and educate a selected team of the end-users as Trainers for first level support. This approach has proven successful in mostly all our previous project implementation. The **"Train the Trainer"** education system will be implemented for the core group of system trainers called the "Core Team". The Core team will periodically be called for intensive centralized training and refresher training to ensure successful implementation of the business operations. The user training that will be conducted by the Core Team will be supervised and monitored by the Contractor's project team.

- End-user

The end-users will be trained and supported on-site by the Core Team. An adequate supply of user manuals will be delivered for referencing purpose. Training on application system is provided that exactly mirrors the operational system but uses test data.

Execute the training programs

The courses will be conducted according to the schedule that will be agreed/approved by RPD. The schedule should not be too rigid since there may be some changes during the project duration.

4.7.2 Training Material

Training materials are provided to participants to facilitate the learning process during the training. The training materials will be in the form of hardcopy hand-out and also based on User Guide which will be developed with online with the system. On top of that also, the training will refer a lot on the system itself.

4.7.3 Training Requirements

To ensure that the training programs are executed smoothly, a proper training requirement will be prepared. It includes the following:

- **Identifying the training location**

  The user training will be conducted centrally and also at end-user's sites and agencies (this will depends on the current situation and requirement during the actual implementation). For centralize training, a complete training center with the required infrastructure set-up will be provided by RPD.

  The set-up should mock the environment of the actual system at the workplace. Therefore the hardware to be provided must be similar with the hardware that is to be provided in the actual environment.

- **Identifying and providing the training rooms requirements**

  Once the location for the centralize training has been identified, the training requirements need to be defined and provided. Other than the infrastructure, other facilities such as the stationeries must also be arranged.

- **Identifying the logistics**

    In order for the training participants to have comfortable learning environment, a proper logistics must be identified and arranged for them. These include the lodging and transportation for outstation participants.

- **Training Evaluation**

    For each training program conducted to end-users, evaluation will be done. This is to measure the effectiveness of training being provided based on the feedback given by the training participants. The feedback will be used to identify the weaknesses of the program and hence to enhance and improvise the training program.

4.7.4 Types of Training

In principal two (2) types of training shall be provided. Training to be given will be users training and also the IT personnel supporting the operation of the system. We shall provide the following trainings to the users:

Trainings	Descriptions	Mechanism/class	Duration
e-NIC Technical Training	The goal of this training will function as a Technology transfer to the technical members of RPD. This will ensure continuous flow of technical and operational of e-NIC once handed over. It will equipped the RPD's	1 session of class	3 days

	technical wit the necessary skills and knowledge that is required. Identified technical training are as follows : • Application and System Operation Training. • User Administration Training • System Maintenance and Technical Training		
e-NIC End User Training	End User training is designed to support operational staffs in their day-to-day operations. It will equipped the RPD's user and management wit the necessary skills and knowledge that's required. Identified training are as follows: • Management Training • e-NIC Core Team Training • e-NIC User Training	1 session of class	2 days

4.8   Critical Success Factors of Project Implementation

4.8.1   Transfer of Technology

Based on our project experiences, there are several factors which should be highlighted to ensure effective Transfer Of Technology (TOT) program:

- We must have strong coordination skill to coordinate with the end-users within the organizations in conducting technical training as well as application training.
- To identify faster what technology to be transferred and to the right personnel, we must have prior knowledge to the structure, the job scope and also the current skill of the IT personnel of the end-users.
- The evaluation done for each training and TOT program would give useful feedback on areas of improvement for continuous effective TOT to the end-users.

4.8.2   Application Development Approach

- Sufficient resources that have in depth knowledge of the ministry and the agency operation from both HeiTech and end-users are critical to ensure that complete and solid requirements are captured and tested.
- Due to the short timeframe, rework on the design caused by changes of requirement will seriously impact the project timeline. Therefore, initial design analysis work (STAGE 1) should be sufficiently detailed to guide the work during the subsequence construction phase.
- Frequent checkpoint and feedback by both the HeiTech and RPD are required to ensure quality delivery. Commitment for review phases as per the quality assurance plan is crucial

- Commitment for frequent review and feedback by both HeiTech and RPD is crucial to ensure quality and timely delivery.

- A fulltime user representative to be a part of every program development team. The persons involved will be in charge of liaising with RPD's and/or agencies stakeholders (management, users, etc). This is to reduce turnaround time during communications between program development team and the stakeholders.

4.9 Quality Assurance

Software testing is as much an art as a science. In large, complex applications, such as operating systems, it is practically impossible to iron out every single bug before releasing it both from a difficulty point of view and due to time constraints. Different software applications require different approaches when it comes to testing, but some of the most common tasks in software QA include:

i. Validation testing

Validation testing is the act of entering data that the tester knows to be erroneous into an application. For instance, typing "Hello" into an edit box that is expecting to receive a numeric entry.

ii. Data comparison

Comparing the output of an application with specific parameters to a previously created set of data with the same parameters that is known to be accurate.

iii. Stress testing

A stress test is when the software is used as heavily as possible for a period of time to see whether it copes with high levels of load. Often used for server software that will have multiple users connected to it simultaneously. Also known as Destruction testing.

iv. Usability testing

Sometimes getting users who are unfamiliar with the software to try it for a while and offer feedback to the developers about what they found difficult to do is the best way of making improvements to a user interface.

4.9.1.1   Type of Project Review

Monthly project reviews will be conducted by the Steering Committee to ensure customers' requirements are met and are within the timeframe. The technical aspect of the system development will also be reviewed with customers to ensure that every level of system development satisfies the customer's requirements. Problems and issues will be reported and highlighted in a regular project team meeting.

Our Quality Management System identifies a number of project reviews. These reviews can be broadly categorised into one of the following groups:

a. Quality Reviews

Quality Reviews take place during all phases of the project lifecycle. Their overall purpose is to examine and check each of the project deliverable documents prior to delivery to the customer. Examples of such documents include a Project Plan, a Software Requirements Specification or a User Guide.

As the name implies, Quality Reviews examine documents from a quality viewpoint with the main focus being their overall content and readability plus their adherence to the organisations' quality management system.

Quality Reviews involve a Quality Reviewer and the author of the document concerned.

b. Technical Reviewer

The primary responsibility of the Technical Reviewer is ensuring that technical details within the deliverable documents are technically correct and feasible. As a result, the Technical Reviewer must have a good technical background and be able to use this knowledge to critically assess the deliverables from a technical viewpoint. He/she must also have a good understanding of Quality Management System in order to ensure that all the required technical details are addressed.

In view of the above, a Technical Reviewer within this organisation is whoever deemed to have the appropriate technical skills for the project at hand. The appointment is made by the Project Manager after consultation is being made with the related person and his/her relevant manager, where appropriate.

More than one Technical Reviewer may be appointed in cases where there are a number of different technical issues to be reviewed.

c. User Reviewer

The primary responsibility of the User Reviewer is to take an active interest in the Custom Development process and the deliverables that are produced. For this involvement to be beneficial, User Reviewers must have a good knowledge and understanding of their requirements and be able to communicate these effectively.

The appointment of User Reviewers normally occurs at the commencement of the project but may also take place during the project. It is the responsibility of the Project Sponsor to nominate such people and to schedule time for their involvement in the review activities during the project.

4.9.1.2   The scheduling and conduct of project reviews

In normal circumstances, reviews are conducted against each of the deliverables that have been produced by the project team. Hence, it is recommended that the User Reviews be conducted. The most essential review is the final one that provides the user's stamp of approval to the document concerned.

Upon receipt of the deliverable document, the Reviewer should read it and identify any aspects that require changing, expansion, clarification, deletion or discussion. Whilst reviewing the document, the Reviewer should note down any issues on the Project Review Issues Forms provided by the document author or Project Manager.

As soon as the issues from the review have been resolved, the document author must arrange for the document to be redistributed to the Reviewer. If issues are still not resolved, the review forms must again be collected by the document author for the whole review process to be repeated.

In cases where all issues have been satisfactorily resolved, the document author must still collect the review forms having first obtained sign off from the Reviewer on the appropriate section of the Quality/Technical/Testing Review Report Form. The forms shall be kept in the project documentation by the Project Manager.

The final step in the Quality Review process is to obtain the Reviewer's authorisation signature on the Document Authorisation page at the front of all official copies of the document. This occurs when the copies are in their final format just prior to release to the customer.

4.9.1.3   Quality Assurance Process Flow
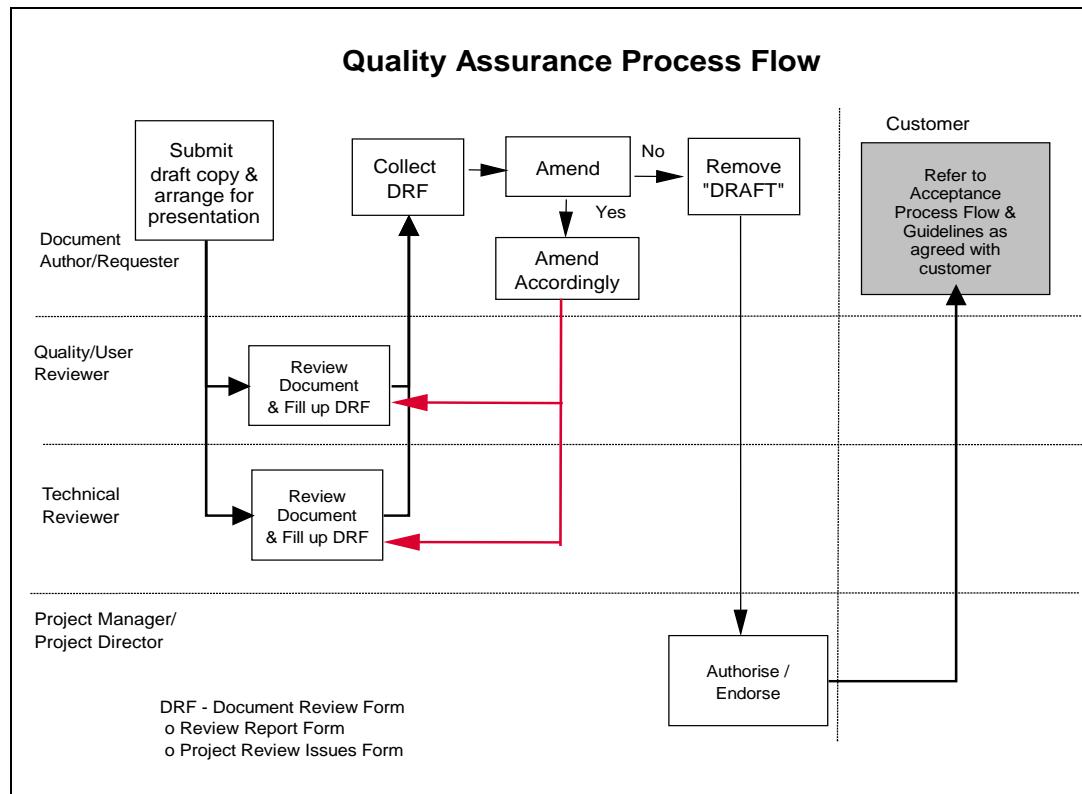
Figure 1-11 Quality Assurance Process Flow

4.9.1.4   **<u>ISO 9000</u>**

The ISO 9000 family of standards represents an international consensus on good quality management practices. It consists of standards and guidelines relating to quality management systems and related supporting standards.

ISO 9001:2000 is the standard that provides a set of standardized requirements for a quality management system, regardless of what the user organization does, its size, or whether it is in the private, or public sector. It is the only standard in the family against which organizations can be certified – although certification is not a compulsory requirement of the standard.

The other standards in the family cover specific aspects such as fundamentals and vocabulary, performance improvements, documentation, training, and financial and economic aspects.

4.9.1.5   **Information Security Management System ISO 27001**

ISO/IEC 27001:2005 covers all types of organizations (e.g. commercial enterprises, government agencies, not-for profit organizations). ISO/IEC 27001:2005 specifies the requirements for establishing, implementing, operating, monitoring, reviewing, maintaining and improving a documented Information Security Management System within the context of the organization's overall business risks. It specifies requirements for the implementation of security controls customized to the needs of individual organizations or parts thereof.

ISO/IEC 27001:2005 is designed to ensure the selection of adequate and proportionate security controls that protect information assets and give confidence to interested parties.

ISO/IEC 27001:2005 is intended to be suitable for several different types of use, including the following:

§ use within organizations to formulate security requirements and objectives;

§ use within organizations as a way to ensure that security risks are cost effectively managed;

§ use within organizations to ensure compliance with laws and regulations;

§ use within an organization as a process framework for the implementation and management of controls to ensure that the specific security objectives of an organization are met;

§ definition of new information security management processes;

§ identification and clarification of existing information security management processes;

§ use by the management of organizations to determine the status of information security management activities;

§ use by the internal and external auditors of organizations to determine the degree of compliance with the policies, directives and standards adopted by an organization;

§ use by organizations to provide relevant information about information security policies, directives, standards and procedures to trading partners and other organizations with whom they interact for operational or commercial reasons;

§ implementation of business-enabling information security;

§ use by organizations to provide relevant information about information security to customers.

4.9.1.6   IT Infrastructure Library (ITIL)

ITIL® is the only consistent and comprehensive documentation of best practice for IT Service Management. Used by many hundreds of organizations around the world, a whole ITIL philosophy has grown up around the guidance contained within the ITIL books and the supporting professional qualification scheme.

ITIL consists of a series of books giving guidance on the provision of quality IT services, and on the accommodation and environmental facilities needed to support IT. ITIL has been developed in recognition of organizations' growing dependency on IT and embodies best practices for IT Service Management.

The ethos behind the development of ITIL is the recognition that organizations are becoming increasingly dependent on IT in order to satisfy their corporate aims and meet their business needs. This leads to an increased requirement for high quality IT services.

ITIL provides a systematic and professional approach to the management of IT service provision. Adopting its guidance offers users a huge range of benefits that include:

- reduced costs
- improved IT services through the use of proven best practice processes
- improved customer satisfaction through a more professional approach to service delivery
- standards and guidance
- improved productivity
- improved use of skills and experience

- improved delivery of third party services through the specification of ITIL or ISO 2000 as the standard for service delivery in services procurements.

Section 5: Project Implementation Plan

Section 5: Project Implementation Plan

Section 5: Project Implementation Plan

5.1 Project Implementation Plan

The implementation of this solution proposed is expected to take about 14 months from the point of initiation or kick-off. It will go through several major phases or stages as follows in a typical product lifecycle:

§ Requirements and Design Definition

§ Development and Implementation

§ Pilot

REQUIREMENTS AND DESIGN DEFINITION: It is expected that this phase should take about 2 **months**. At this phase defining and refining the requirements of the final and expected solution would be identified and finalized with RPD, and used as the baseline for the development and implementation phase. All subsequent changes to the system design will be based on this defined baseline managed by a change management process.

DEVELOPMENT AND IMPLEMENTATION: This is the phase where the actual application and system development will begin. This phase should span about 12 **months**. This phase will constitute, application and system development, testing, and procurement of major hardware and software components, and nationwide rollout implementation. ICT infrastructure re-engineering improvements and migration will also be carried out at these phase.

PILOT: This is the pilot phase of e-NIC system where the Pilot Sites is RPD HQ and 1 RPD regional site. It is expected that this Pilot Test phase will take about **1 month.**

Please refer to **Project Implementation Plan** for the proposed planned implementation phases and timeline for the e-NIC System, as per Annexure.

5.2 Warranty,Maintenance and Support Services

As required in the tender document, HeiTech shall provide **three (3)** years warranty on system application from the date of e-NIC system user acceptance. This will follows with commence of the support and maintenance of the system for a period of **four (4)** years, upon expiry of the warranty.

HeiTech shall provide a support Centre in Colombo through its Partners Epic Lanka. This centre will provide support according to the hours and days as specified in tender documents. After hours support is restricted to Critical and Major priority calls only. If all call personnel are busy the call will be placed in a queue until the first available person can take the call request.

The Support Hotline numbers will be provided if our bid is successful. The e-mail ID will also be provided for support correspondence.

Support Priorities & Response Guidelines

HTP shall comply with the requirements as specified in the tender document.

5.2.1   Maintenance Services

HeiTech shall provide the following maintenance services in respect of the Equipment:

5.2.1.1 Periodic Maintenance

(i)   HeiTech shall make visit to the Place of use at such intervals as specified by RPD. The details and frequency of visit are as per Section 9:Annexure. HeiTech shall test the functions of the Equipment and make such adjustments as shall be necessary to keep the Equipment in good working order. Such visits shall be made during Maintenance Hours by prior appointment with the Government.

(ii)   The detail schedule of the preventive maintenance will be provided to RPD based on calendar year.

(iii)   Any deviation of the preventive maintenance schedule will be notified to RPD accordingly.

5.2.1.2 Corrective Maintenance

A. Telephone Support

(i)   Support service will be provided by telephone with HeiTech's technicians, to the Government during the duration of this Agreement on working days (excluding Sundays and Public holidays) and during the maintenance hours.

(ii)   Upon the receipt of the telephone call from the Government to HeiTech's Help-Desk, HeiTech shall reply within *four (4)*

working hours thereafter for Severity Level 2 and 3. *Two (2)* working hours for Severity Level 1.

B. On-site Support

    (i)   Upon receipt of notification from the Customer that the Equipment has failed or is malfunctioning HeiTech shall, during Maintenance Hours make such repairs and adjustments to and replace such parts of the Equipment as may be necessary to restore the Equipment to its proper operating condition. On receipt of a request for on-site support HeiTech undertakes to dispatch a suitably qualified technician to the Place of use as soon as possible but such response time is an estimate only and shall not be binding on HeiTech.

The Maintenance Services do not include any maintenance of the Equipment which is necessitated as a result of any cause other than fair wear and tear or HeiTech's neglect or fault including without limitation:

    (i)   Electrical work external to the Equipment; repair or renewal of magnetic media, printing cartridges or other consumable supplies;

    (ii)   Physical damage in the course of transportation or relocation of the Equipment not performed by HeiTech;

    (iii)   Any error or omission relating to the operation of the Equipment made by third party without the written consent of HeiTech;

(iv)   Any modification, adjustment or repair to the Equipment made by a third party without the written consent of HeiTech;

(v)   The subjection of the Equipment by the Government to unusual physical or electrical stress, the neglect or misuse of the Equipment or any failure or malfunction of electrical power, air-conditioning, humidity controls or other environmental controls;

(vi)   Any accident or disaster affecting the Equipment including without limitation fire, flood, water, wind, lightning, transportation, vandalism or burglary;

(vii)   The Customer's failure, inability or refusal to allow HeiTech's personnel proper access to the equipment;

HeiTech will at the request and expense of the Government repair or replace any part of the Equipment which has failed due to other then fair wear and tear provided that the Customer accepting HeiTech's written quotation therefore prior to the commencement of work.

Subject to the foregoing, the Maintenance Service shall also include additional service by HeiTech such as :-

(i)   advising the Government on the requirement of the replenishment items and consumables
(ii)   advise and provide consultancy after the maintenance has successfully completed

5.2.2 Replacement Parts and Loaner Unit

HeiTech will supply new, second hand or reconditioned replacement parts in the performance of its duties hereunder, subject to agreement by both parties.

HeiTech shall provide a loan or substitute equipment if;

  i)   In any event a repair cannot be completed within the stipulated time according to SLA; loan/substitute unit shall be available within three (3) working days

  ii)   Loan equipment is only a stopgap measure but still considered as part of resolution until repair or replacement of faulty parts or equipment is completed

  iii) Any equipment beyond repair and need replacement, HeiTech shall inform in writing to the Government, in line with Government Asset Management Procedure.

5.2.3 Trouble Free Operations

HeiTech hereby agrees and warrants that it shall during the subsistence of this Agreement provide the Maintenance Services to ensure that the operation of the Equipment shall be trouble free, and the Equipment shall be able to carry out its normal functions for which it is intended to subject to the terms and conditions specified hereinafter.

5.2.4 Representations and Warranties

Each Party hereto represents, warrants and undertakes to the other Party that:-

i)   it has full power and authority to enter into this Agreement and this Agreement constitutes an agreement binding on it without any requirement to obtain the approval or consent of any third party; and

ii)   it shall execute or procure to be executed all such documents and do or procure to be done all such acts and things as may be necessary to give full effect to all provisions of this Agreement.

5.2.5 Application Maintenance

HeiTech Support team, supporting the Application Maintenance consists of the following teams:

- § Application Development
- § Implementation
- § Maintenance and Support

The Application Development Unit is made up of two units:

i) Business Support Team; whose main tasks is to look into the business side of the system, meaning any new developments or amendments to be done need to be evaluated and analyzed by this team. The evaluation is to ensure the changes conform to the overall business requirements of RPD.

ii) Application Development Team; whose main task is to look into the technical side of the system. One of the tasks is to fine-tune the system software to ensure maximum performance of the overall system.

Scope of work:

Ø Fine Tuning

- Introduction
  From time to time, systems may require adjustments and tuning. This as a result from system performance becomes degrading or some output is not meeting user requirement and expectation. As part of maintenance services, fine-tuning the applications shall also be undertaken during the period of technical maintenance.

- Tasks Performed

  HeiTech will schedule a or periodical discussion with RPD business and technical users to fine tune system according to business area. The session will discuss problems and helpdesk report for the month. When fine tuning, HeiTech will ensure that the following activities to be completed:

  § Requirement study to be conducted

  § Conduct feasibility study and impact analysis on the Immigration system

  § Identify tuning requirement

  § Gather / purchase additional components for system enhancement (if required)

  § Complete upgrading/tuning solutions to be submitted for approval

  § Require testing on the test-bed system prior to actual deployment

  § Monitoring to ensure that system tuning meets requirement

Ø **Problem Identification and Resolution**

- Introduction

  All problems originating from the system users is handled in a prompt and systematic manner and centrally managed at HeiTech's Help Desk Operation.

- Responsibilities

  - Application Development / Support Team

  - Implementation Team

  - Help Desk Operation Team

- Tasks Performed

  § To provide 1st level support to solve problem being raised, meaning, the Help Desk Operation Team will try to resolve the problem. Should the Help desk operation team is not be able to solve the problem, it

will escalate the problem to the second level support that is normally the application technical support team.

§ The second level support to liaise directly with the customer until the problem is resolved and updating the status of the problem with 'Close' can either be done by the second level or the Help Desk Operation team.

§ Shift Supervisor of Helpdesk Operation to continuously view problems that has been transferred from second level.

§ Take ownership of the problem by resuming the problems

§ Work History must be updated upon getting:
- Important information
- Feedback from second level/vendor
- Any action taken by analyst / second level / vendor in order to resolve the problem

§ If problem is solved, close the log after making confirmation by:
- Calling customers
- Getting the acknowledgment from the second level

Ÿ If problem is not solved, transfer/refer it back to the second level support.

- Report will be sent to HQ for business report consolidation.
- Additional tasks to be performed by Shift Supervisor (Help Desk)
    § To review all outstanding problems through the Problem Management System (PMS) for the day and take necessary action according to the criticality of the problem when taking over shift.
    § Continuously follow-up on critical problems and monitor the status and progress of pending problems.

§   To monitor and update all the feedback given by second level or vendor through e-mail /verbally / Problem Management System and confirmed with customer before closing the problem.

§   To monitor Analyst workload through Problem Management System and distribute the workload equally among the Analyst.

§   To update the staff schedule/chart on duty continuously

Ø **Problems Management**

- Introduction

  Problems that were reported to Help Desk and logged in the Help Desk System need to be monitored continuously. Due to the complexities on some of the problems, a special tasks force is set up to undertake problem management function.

- Tasks Performed

  a) Problems Monitoring:

  - Liase with all parties involved in providing solutions of all aspects to rectify Immigration System problems;
  - Application support team
  - Infrastructure support team
  - Third party maintenance contractors/vendors
  - Liase with end users and IT personnel;
  - Liase with HeiTech Helpdesk Operation Team

  b) System Performance Monitoring:

  - To rectify and to propose solution to resolve problems or to improve further the system
  - Monitor the execution of any new modification or changes.

- Produce Management reports, for example; Problem Resolution Report.

c) A part form the above tasks, the special tasks force, is also responsible for other support/monitoring functions as follows:

- To solve technical problems on-site if necessary.
- Streamline all related jobs/activities pertaining to hardware Preventive Maintenance and Corrective measures
- Ensure that customer acceptances are obtained for all completed jobs
- Conduct periodic status monitoring meetings with all parties/vendors
- Monitoring and Tracking of Asset Inventory
- Assist in the accounting activities for maintenance billings

5.2.6 Principal Period of Support (PPS) Requirements

The Principal Period of Support (PPS) is from 08:00 a.m. to 05:00 p.m. Monday through Friday excluding Public Holidays (Purchaser's Local Time). In this proposal, the 'Service Duration' covers both the warranty and maintenance services. All the warranty and maintenance services for all equipment are covered for 24 hours a day, 7 days a week, throughout the year. The warranty starts from e-NIC system user acceptance for a period of three years. The maintenance services will start upon warranty expiry for a period of 4 years.

We will ensure that RPD is always able to reach a support engineer with a critical problem, regardless of the time or day of your request. Our support engineers are trained in problem analysis and take a focused and structured approach to solving critical and time sensitive issues.

All service requests submitted via the web, phone, and fax are logged, tracked, and resolved, and then closed only with customer agreement. Service request

are prioritized based on a set predefined severity levels, which are assigned according to the problem's impact on your business.

Support and Services

HeiTech Padu Berhad is committed to provide synergized support to RPD. We are committed to becoming the best provider of services in the country. We want our customer to benefit from the investment and planning we have put in place to achieve this commitment.

Our People

The key personnel who will directly support your installation are the Services Engineers and Systems Engineers. This group of qualified people are carefully selected and put through our intensive training program to ensure that they build a strong base and achieve a high level of competence when carrying out their work. In addition, our service personnel are trained in interpersonal skills This is part of our recognition of the importance in communicating with all levels of management in our customer locations to ensure that we can understand and meet what is required.

5.2.7 On-Call Services Requirements

Single Point of Contact

The Tenderer will provide a centralized 24 x 7 x 365 days Helpdesk services (CCC) will be offered to RPD for the required period. This centre provides first level support services and escalate problem resolution to the next level if necessary.
To ensure easy and unlimited access to our Call Centre, our advanced Customer Relationship Management System allow flexible call submittal either via our dedicated service hotline and fax or login into our web site.

With this system, customers can also monitor their own incidents on-line, access the most current status of the incident including detailed descriptions of the actions taken by the support engineer. Having access to this information helps the customer stay informed and feel confident that their issues are being addressed.

Technical Backup Support

We will provide the necessary technical back-up support (on-site assistance) from its Head Office in the event:

- The dedicated service engineer is unable to meet the increase in service needs.
- Technical specialist assistance is needed to resolve a complex issue.
- The dedicated service engineer attends training, on annual or medical leave.

On-Call Service Response Table for Critical Components

Site Level	Time to Arrive On Site (in Hours)	Time to Resolve the Problem (in Hours)
Department of Registration of Persons - Head Office	2	8
Department of Registration of Persons units at Divisional Secretariats	5	8

On-Call Service Response Table for Non-Critical Components

Site Level	Time to Arrive On Site (in Hours)	Time to Resolve the Problem (in Hours)
Department of Registration of Persons - Head Office	4	16
Department of Registration of Persons units at Divisional Secretariats	6	16

The following table defines critical components of the system. By default, any other component not included in this table will be considered as non-critical.

Critical Components

Component	Description
Software and Servers	The problem causes a total system outage or it severely impairs key functional aspects of the Department of Registration of Persons. Work cannot reasonably continue, the operation is mission critical to the operation of the Department of Registration of Persons.
Switch, Hubs	The problem causes a total system outage or it severely impairs key functional aspects of the Department of

	Registration of Persons. Work cannot reasonably continue, the operation is mission critical to the operation of the Department of Registration of Persons.
Routers	The problem causes a total system outage or it severely impairs key functional aspects of the Department of Registration of Persons. Work cannot reasonably continue, the operation is mission critical to the operation of the Department of Registration of Persons.

5.2.8 Customer Care Center(CCC) Value Added 24-hours Helpdesk Services

HeiTech Padu Customer Care Center is designed to ensure all customer interactions result in satisfaction. Customer Care Centre provides excellent customer service by focusing on customer needs, as proven by our track record. Our Customer Care Center is open and ready to serve 24 hours a day, 7 days a week covering all aspects of customer service ranging from focus groups and quality assurance problem management to service recovery and complaint management.

Providing end-to-end customer support services, HeiTech understands the importance of being able to effectively and proactively meet Customer Service demands, challenges and opportunities together with the customer. This will ensure that the customer is in the position of getting the maximum advantage to the information obtained during its interaction with the customers.

Services offer:

1. Problem Management and Resolutions

This consists of fundamental activities that include Incidence Logging and Prioritization, Incidence Assignment, Incidence Diagnosis and Escalation,

Incidence Resolution, Incidence Reporting and Reviewing, Service Level Management and Reporting

(a) Incident Receiving, Logging and Prioritization

Customer details and description of problems received will be logged into HeiTech's Problem Management System (PMS), and problem ticket number will be generated automatically. The problem ticket number to be given to the customer for future reference.

(b) Incident Assignment, Diagnosis and Escalation

The Analyst will identify the nature of problems, and The Analyst will assign severity level to the problem depending on its criticality and impact. The Analyst will perform 1st level trouble shooting using the tools available at the first level support. Should the analyst not able to solve the problem, it will be escalated to the second level support through the Problem Management System and other mechanisms i.e telephone, e-mail or SMS. The occurrences of Severity 1 problems will be notified to IT Department via Problem Management System alert as well as SMS. The access to Problem Management System can be extended to the customers for the purpose of tracking the progress of problem resolution.

(c) Incident Resolution

If the problem can be resolved by first level, the analyst will inform customer and close the problem log, if resolved by second level support or other contractors, they will follow up with the second level support or contractors until the problem resolved and close the problem and update the users.

(d) Incident Reporting and Reviewing

HeiTech will continuously review outstanding problems.

§   HeiTech performs follow up of problems at 2nd level.

§ Work History will be updated in the PMS upon getting important information, feedback from second level/vendor or any action taken by Analyst/second level/vendor in order to resolve the problem. Reports will be produced and sent to relevant teams as required by the customers.

(e) Service Level and Reporting

Helpdesk reports will be distributed from Monday through Friday. For problems received on Saturday and Sunday, the reports will be produced on the next Monday.

- Benchmarking the services levels targeted against the service level set
- Providing service level reporting and analysis at agreed intervals.

The reports provided include:

Ÿ Total problems closed and outstanding
  ü Daily
    ○ Daily Report
    ○ Daily Outstanding
Ÿ   Service level reporting
  ü Monthly
    -    Monthly Summary Report

2. Network Monitoring of branch connectivity

This offers monitoring services for customer's branch connectivity using Network Management system which alerts users when they face connectivity problem. Upon receiving the alerts, HeiTech Customer Care analysts will inform the affected customers, and trigger Incidence Management and Resolution.

3. Onsite engineering services

This includes placing HeiTech engineer at qualified customer's Headquarters to focus on the customer's IT operations.   The engineer monitors the

connectivity operations from the system monitoring tool and attends to all customer's problems detected by the system. The engineer will troubleshoot right away whenever problem occurs at the Headquarters. This will minimise downtime experienced by the customers and proactively eliminate potential problems due to physical or environmental faults.

4. **Guaranteed Service Level Agreements (SLA)**
   This includes offering solutions and services that are benchmarked against a pre-determined and guaranteed service level. These reports are then provided and analysed on a regular basis with the customer

5. **Consultancy**
   Assistance in setting up Help Desk facilities

Help Desk Service Response Table for Critical Components

Site Level	*Time to Resolve the Problem* *(in Hours)*
Department of Registration of Persons - Head Office	8
Department of Registration of Persons units at Divisional Secretariats	8

Help Desk Response Table for Non-Critical Components

Site Level	*Time to Resolve the Problem* *(in Hours)*

Site Level	Time to Resolve the Problem (in Hours)
Department of Registration of Persons - Head Office	16
Department of Registration of Persons units at Divisional Secretariats	16

The following table defines critical components of the system. By default, any other component not included in this table will be considered as non-critical.

Critical Components

Component	Description
Software and Servers	The problem causes a total system outage or it severely impairs key functional aspects of the Department of Registration of Persons. Work cannot reasonably continue, the operation is mission critical to the operation of the Department of Registration of Persons.
Switch, Hubs	The problem causes a total system outage or it severely impairs key functional aspects of the Department of Registration of Persons. Work cannot reasonably continue, the operation is mission critical to the operation of the Department of Registration of Persons.
Routers	The problem causes a total system outage or it severely impairs key functional aspects of the Department of Registration of Persons. Work cannot reasonably continue,

Section 5: Project Implementation Plan

	the operation is mission critical to the operation of the Department of Registration of Persons.

Planned Operational Schedule

	RPD – Head Office		RPD Units at Divisional Secretariats	
Days of the Week	Monday - Friday	Saturday	Monday - Friday	Saturday
Hours/Day	09	--	09	--
Hours/Week	45	--	45	--
Total Hours/Week	45	--	45	--
Total Hours/Month	180+		180+	

Maximum Allowable Downtime per Month (in Operational Hours) and the related penalties for any additional downtime are given in the below "Maximum Allowable Down Time and Penalties" table.

Maximum Allowable Down Time and Penalties

	RPD Head Office (in hours)	*RPD Units at Divisional Secretariats (in hours)*
Critical Components	2	2
Non-Critical Components	4	4

5.2.9 Preventive Maintenance Requirement

HeiTech will provide preventive maintenance program for all critical components in the system. This program should provide at least on a semi-annual basis preventive maintenance service to these components and include repair or replacement of parts or components that are likely to fail.

Preventive Maintenance is generally applied to hardware equipment where fine-tuning, system diagnostics, visual checks, replacement of faulty parts or consumable, and the cleaning, lubrication and adjustment are carried out.
Among others, Preventive Maintenance will cover:

- cleaning of external of the components including monitors and keyboards

- Lubrication and preventive replacement of parts as required and recommended by the manufacturer.

The plans to carry out the PM 2 times a year is to ensure all hardware equipment are at optimum performance. All PM activities will be recorded, physical checks will be conducted consistently during the warranty period and reports will be produced for each PM implemented.

We will send out the PM schedule in advance to e-NIC system application, to confirm their availability, and the date(s) shall be adjusted at the per end-users convenience. Besides, it is to ensure that the downtime for a particular machine is at minimal and it should and must not disrupt the daily operations of e-NIC system application. The PM activities may also be done after the normal office hours and it depends on situation needs.

5.2.10 Support Structure and Escalation Procedures Requirements

All service requests submitted via the web, phone, and fax are logged, tracked, and resolved, and then closed only with customer agreement. Service request are prioritized based on a set predefined severity levels, which are assigned according to the problem's impact on your business. We categorize the requests as follows:
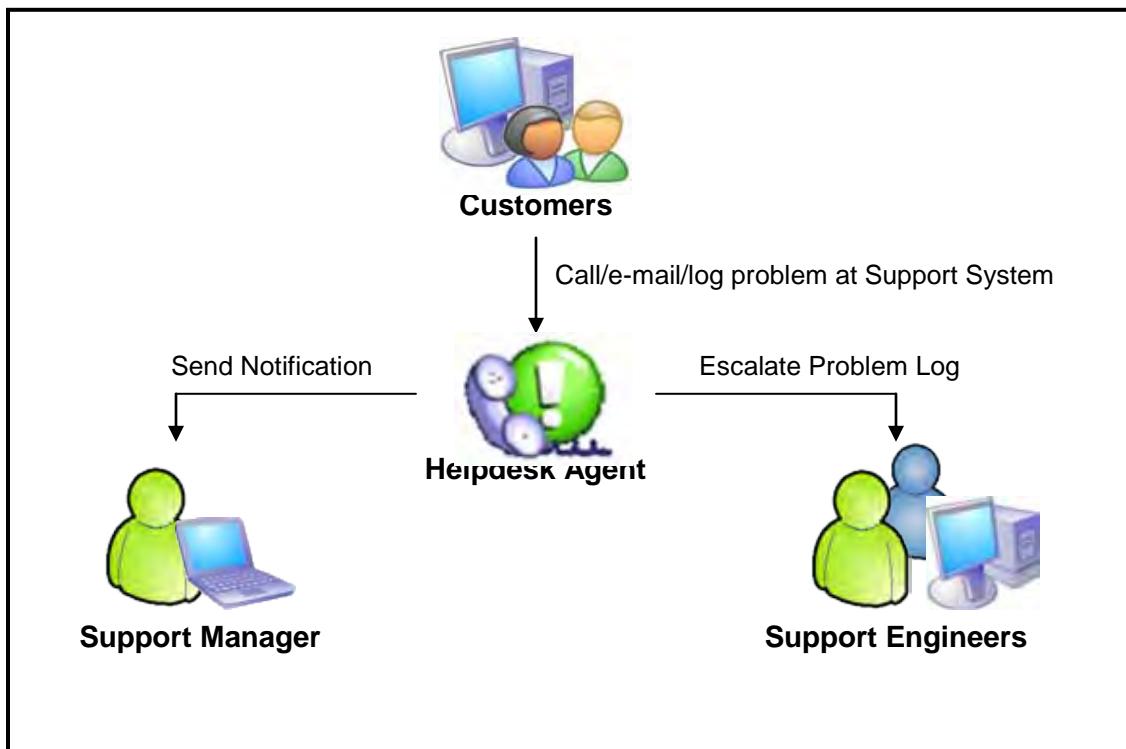
Severity	Description	Escalation to 2nd/3rd Party Level
Critical – Production Down	The impact of your system downtime gets the direct and immediate attention of our Support analysts and developers. We treat these critical cases with the utmost urgency.	Within one (1) hour
Urgent – Production Impacted	Our support analysts and developers give immediate attention to your urgent production need. They set a goal to solve the problem within a specific timeframe that works for you.	Within two (2) hours
Normal – New request and minor problem	Our support analyst and developer give immediate attention and the request will be completed within the agreed timeframe.	Within four (4) hours

- o Reporting and handling of requests will be performed
- o We will ensure system availability to avoid business interruptions
- o All problems or requests will be handled by written reports (Service Request Form)

o   User must submit sufficient material and information for our support staff to work on. Whenever appropriate, we will endeavor to give an estimate on the time taken to solve the problems.

o   Upon initiation of the problem resolution procedure, an estimation of the length of time needed for completion of the task will be provided within the next working day.

o   When the solution is identified and installed, the users will be required to sign the service form to acknowledge the acceptance of the solution.

The diagram below depicts the maintenance services flow:

5.3   Change Request

Any changes and updates to the e-NIC System will be handled in a controlled manner according to the procedures and guidelines in the tender document. Details of the process is reflected in Section IV- 4.6.8 Configuration Repository.

5.3.1   Example of Change Request Activities

No	List Of Task	Date	Action By	Remarks
DAY 1 – Change Request 5-2009				
1	User Acceptance Test with End User	2:00 PM-5:30 PM	HeiTech Padu RPD	
DAY 2 – Change Request 5-2009				
2	- Fixing Bugs & Prepare UAT Report - Signoff UAT document	8:30 AM-12:30 PM 2:00 PM-5:30 PM	HeiTech Padu RPD	
3	- User Acceptance Test with End User - Resolve issue & provide support to Noblehouse	8:30 AM-12:30 PM 2:00 PM-5:30 PM	HeiTech Padu RPD	
DAY 3 – Change Request 5-2009 & Maintenance				
4	- Database Housekeeping - Database Archiving - Running an agent to create certificate for Offshore Company	10:00AM – 4:00 PM	HeiTech Padu RPD ICT Team	

DAY 4 – Change Request 1-2006				
5	- User Acceptance Test (based on previous UAT test)	8:30 AM-12:30 PM 2:00 PM-5:30 PM	HeiTech Padu RPD	
DAY 5 – Change Request 1-2006				
6	- Fixing Bugs & Prepare UAT Report - Signoff UAT document - Discussion with user to resolve a few issues. 2:00 PM-5:30 PM	8:30 AM – 12:30 PM	HeiTech Padu RPD	

5.4 Risk Management

Project management focuses on the early identification of potential issues/risk factors and their resolution. Efforts are made to eliminate the risks, if possible, otherwise minimise and control these.

RISK PLANNING	RISK ASSESSMENT	RISK HANDLING	RISK MONITORING
'RSKMP'	'RSKMP', 'RSKM Initiation Checklist'	'RSKMP'	'RSKM Progress Checklist', 'RSKM Initiation Checklist'
INPUT	**INPUT**	**INPUT**	**INPUT**
• Allocation of: o Resources for risk management activities, which are based on the HTP RSKMP like attending risk-related trainings, and documentation and reporting.	**Risk Identification:** • Identify the risk in the project's goals, requirements, processes and work breakdown structure elements. (Refer to risk) **Risk Analysis** • Evaluate each of the identified risks to determine its attributes, which include: o Likelihood to occur. o Its consequences. o Threshold / triggers. o Its owner. • Prioritize each of the identified risk based on its attributes.	• For each identified and assessed risk, evaluate and recommend a risk handling options; *avoidance, control, transfer and assumption.* • For each risk, identify its mitigation and contingency plan.	• Implement mitigation activities as planned. • Periodically monitor and report the effectiveness of risk-handling actions and the status of risk. • Update the 'Risk List' and 'Risk Mitigation and Contingency Form' monthly or as and when required.
	OUTPUT	**OUTPUT**	**OUTPUT**
	'Risk List'	'Risk Mitigation and Contingency Form'	Updated 'Risk Mitigation and Contingency Form'

Figure 5-5(a)   Process and Procedures of Risk of the Project

HeiTech follows a well-defined Risk Management Strategy for all of projects where Risk factors are tracked continuously and timely action taken to contain the risk. One of the main tasks of project management will be identification and containment of risk.

Risks areas can be classified as Functional, technical, and quality aspects:

Functional risks are those involving the business functions the application is supporting. Complex or ill-defined functionality represents a risk to the project's success. An iterative approach addresses functional risk by constructing these areas before addressing the rest of the application. This ensures that the application will support the critical functions and provide value to the business.

Platform risks involve innovative or new deployments of technology. Technical risk exists when a project uses established platforms and development environments in a unique combination.

Quality risks revolve around the requirements that the application must meet with regard to performance, usability, flexibility or reliability. In these areas, the project defines iterations to implement the quality aspect. For example, where application usability is key, the initial iteration would develop a representative portion of the user interface.

The Risk Management Strategy for the proposed project will consist of:

- Identification and Impact evaluation of risks
- Preparation of risk management plan for reducing impact of risks
- Monitoring of each risk factor.

In the Risk Management plan as a part of the Project Plan, HeiTech would identify the various potential risks, which could arise during the project, evaluate the risk level and then plan for the contingency measures and responsibilities for implementation of those measures. The risks are identified and described, and appropriate risk-mitigation strategies and action plans are proposed.

An initial risk list is produced at the onset of the project, and updated risk list are produced by project management throughout the course of the project. The categories of risk examined during, for example, the Project Initiation phase include system impact, system acceptance, project planning, project organization and system innovation.

The HeiTech Project Manager will monitor all the Risks owned by HeiTech and an issue log will be maintained and tracked on regular basis and incorporating new risks as the project progresses. Below is an extract folder on Risk Management Planning from PROMISE. HeiTech Project Manager will report all the risks relevant to RPD accordingly.
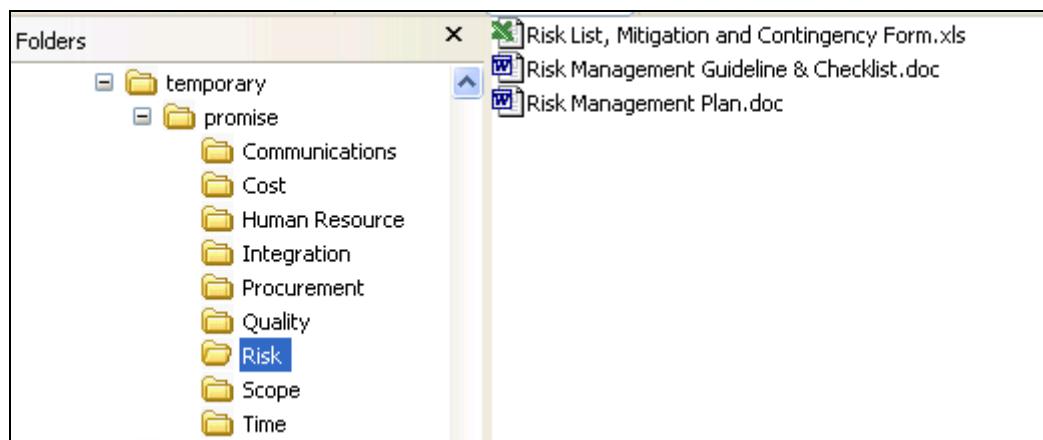
Figure 5-5(b)   PROMISE Folder for RISK MANAGEMENT

Also, HeiTech Project Manager may report it at the first occurrence of the risk event. HeiTech Project Manager and RPD Project Manager will jointly decide on the risk impact and risk mitigation plan.

RPD Project Manager will monitor all the Risks owned by RPD and will communicate to HeiTech Project Manager at the first occurrence of any risk event. HeiTech Project Manager and RPD Project Manager will jointly decide on the risk impact and risk mitigation plan.

5.5   Manual and Documentations

A document repository is where all softcopies of document pertaining to the project is kept.

When a project has been awarded to the Bidder, the Account Manager shall create a document repository folder for the Project in the customer folder. This is

done by copying the blank template folder and its subfolders to a new folder and renamed to the Project Name.

The Document Repository will have the following subfolders:

No.	Folder Name	Contents	Responsibility
1	Proposal	§ Sales proposal § Sales related document	Account Manager
2	Agreement	§ Agreement	Account Manager
3	Minutes & Reports	§ Project Minutes § Project Status Report	Project Manager
4	Project	§ Business Requirement Specification § System Requirement Specification § Requirement Traceability Matrix § Project Schedule § Change Request § PAT / FAT Signoff § Installation and Configuration § Change Request Form § Change Request Log	Project Manager
5	Development	§ System Design Document § Data Migration/Conversion Plan § Application Source Codes § Build Procedure § Document related to development, log file, emails	Project Manager
6	UAT	§ Test Plan § Test Case § Test Report § User Acceptance Document (both	O&M Manager

No.	Folder Name	Contents		Responsibility
		internal and external)		
7	Technical	§	Technical document	Project Manager
8	Manual	§	User Manual	O&M Manager
9	Support	§	Support related document	O&M Manager

5.5.1 Document Templates and Naming Conventions

The following are the list of templates that will be used during the project life cycle. These templates are kept in our Intranet Library under Project / Template folder.

Take note that for Agreements, various types of agreement templates have been created in the Agreement Library in our Intranet.

No	Template Name	Purpose	Used By	Naming Convention
1	Minutes	Meeting Minutes	All	ddmmyy_projectname_Min_rev#.doc
2	FuncSpec	Functional specification	Project Manager	projectname_funcspec_rev#.doc
3	Devnote	Development notes & relevant information	Project Manager, developers	projectname_dev_rev#.doc
4	PrjStatus	Project Status report	Project Manager	ddmmyy_projectname_Pst_rev#.doc
5	TechSpec	Technical Specification	Project Manager, Developers	projectname_tech_rev#.doc
6	IUAT	Internal user acceptance test between O&M and Project Dept.	O&M	projectname_iuat_rev#.doc

No	Template Name	Purpose	Used By	Naming Convention
7	Install	Installation test	Network Services, Developers, Project Manager	projectname_ins_rev#.doc
8	Config	Configuration test	Network Services , Developers , Project Manager	projectname_cfg_rev#.doc
9	UAT	User Acceptance Test	O&M	projectname_uat_rev#.doc
10	PAT	Provisional User Acceptance signoff.	Project Manager	projectname_pat_rev#.doc
11	FAT	Final User Acceptance signoff.	Project Manager	projectname_fat_rev#.doc
12	ChgReq	Change Request on functional specification	Project Manager	ddmmyy_projectname_chg_rev#.doc
13	ChgRqReg	Change Request Register to record all change requests by client	Project Manager	projectname_chgreg_rev#.doc
14	SrvRpt	Services attended at client side	All	ddmmyy_projectname_srv_rev#.doc

Note on the naming convention:

ddmmyy refer to date eg. 010304

projectname refer to the name of the Project, eg. Edge

 # refer to the revision number.

5.5.2 Signed Document Repository

Project Manager shall create a file with the Project Name and kept in the Finance Manager's room.

The file should contain a checklist of the entire document that should be kept for the project. This check-list includes the following document:

- § Final Proposal
- § Agreement
- § Functional Specification
- § Installation Test
- § Configuration Test
- § User Acceptance Test
- § Provisional Acceptance Test (For government-related projects)
- § Final Acceptance Test
- § Change Request

All signed document (hardcopy) should be filed in this file by the Project Manager. The Project Manager should also file printed copies any emails or other document that he or she feels is important for Bidder in the event of a dispute between Bidder and the client.
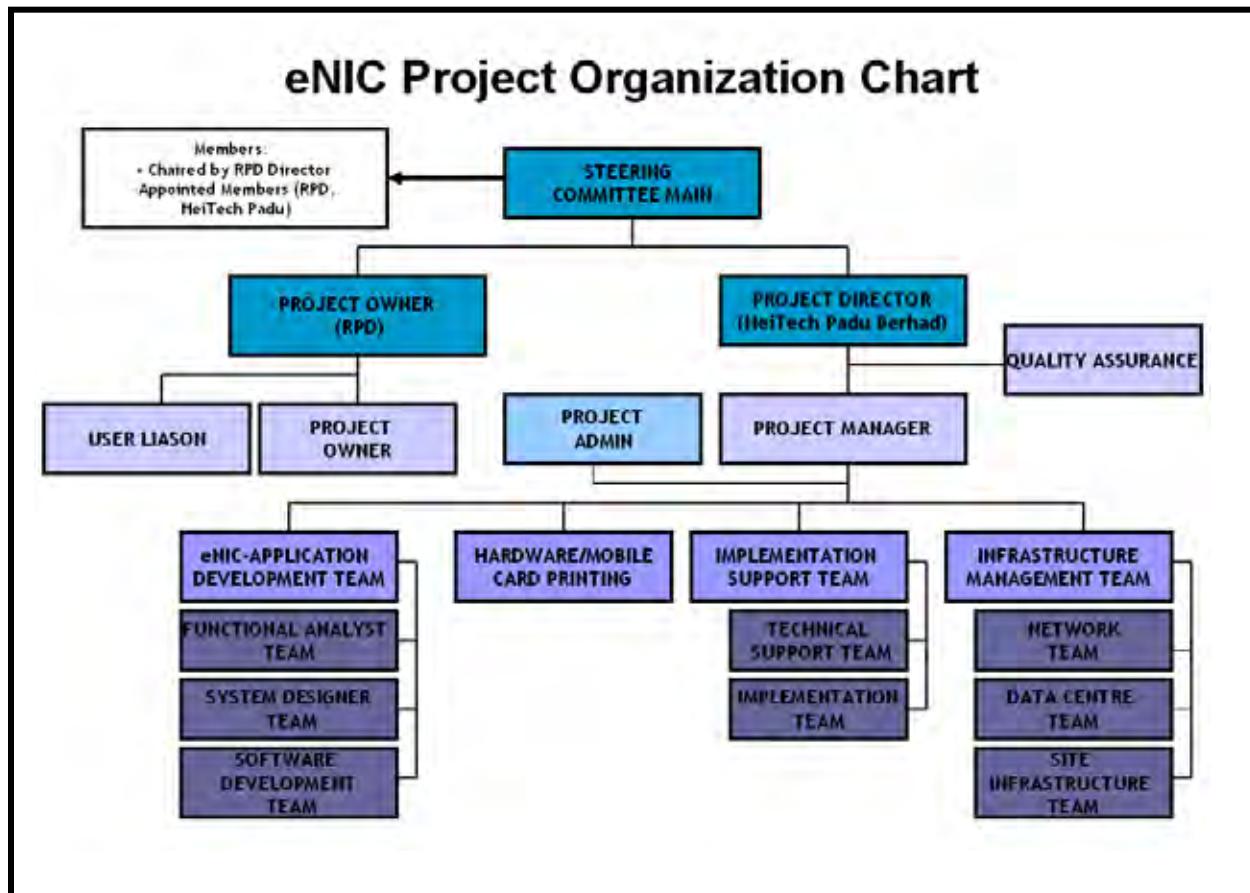
Section 6: Project Organization Structure

Section 6: Project Organization Structure

6.1   Organization Chart

eNIC Project Organization Chart

6.2 Roles and Responsibility

Role	Responsibilities
Project Manager (PM)	• Allocates resources, shapes priorities, coordinates interactions with customers and users, and generally keeps the project team focused on the right goal. • Ensure compliance with the processes and standards identified by the project Quality Management Plan • Preparation and maintenance of Project Management Plan(PMP). • Preparation and conduct of project review. • Review of project status with project monthly report. • Manage the project change requests. • Preparation and maintenance of project plan. • Report and escalate project risks and issues as appropriate • Manage project inter dependencies • Provide input to the Purchaser's Project Manager as necessary • Approve of billing and charges.
Quality Assurance	• Checking and assuring the quality of product and process. • Plans and conducts the formal reviews of the software architecture & designed model. • Ensures the quality of the source code, and plans and conducts source code reviews. • Responsible for any rework feedback that results from review activities

Role	Responsibilities
	• Kindly refer the QAC responsibility in the HeiTech's Application Development Quality Assurance Plan.
Functional Analyst Team (AT)	
Application Development Leader(ADL)	• Implement set of practices identified by the project Quality Management Plan that ensure the integrity and quality of project artefacts. • Prepare progress status for the project monthly report. • Coordinate with the functional analyst on the task assignments, business requirements gathering activities such as scheduling user interviews, user discussion and brainstorming, sourcing for information and updating the agreed project document to ensure in compliance with purchaser's business requirements. • Undertake all tasks allocated by the Project Manager (as per the PMP) • Review and revise detail work plan and escalate issues, risks and changes to the Project Manager for resolution
System Integration Specialist (SIS)	• Details the inter-relationship of the system's functionality by describing the user requirements aspect of one or several business processes in relation with internal systems and external agencies. • Responsible for a business process package, and maintains the integrity of that package content. • Ensure project documentation relating to the execution of allocated tasks complies with the process and standards specified
System Designer Team (SDT)	

Role	Responsibilities
System Analyst (SA)	• Leads and coordinates requirements elicitation and business process modeling by outlining the system's functionality and delimiting the system. • Involving other stakeholders of the user interface, such as end-users, in usability reviews and user testing sessions. • Reviewing and providing the appropriate feedback on the final implementation of the user interface, as created by other developers; that is, designers and implementers. • Ensure project documentation relating to the execution of allocated tasks complies with the process and standards specified • Details the specification of a part of the system's functionality by describing the Requirements aspect of one or several business processes and other supporting software requirements. • Responsible for a business process package, and maintains the integrity of that package content. • Ensure project documentation relating to the execution of allocated tasks complies with the process and standards specified •
System Architect (ARC)	• Leads and coordinates the prototyping and design of the user interface, by: 1. Capturing requirements on the user interface, including usability requirements. 2. Building user-interface prototypes.
Database Specialist (DSp)	• Design and defines the tables, indexes, views,

Role	Responsibilities
	constraints, triggers, stored procedures, table spaces or storage parameters, and other database-specific constructs needed to store, retrieve, and delete persistent objects. • Track progress of the execution of tasks and report to the AD Leader on the timely basis.
Software Development Team	
Senior Software Developer	• Responsible for developing and testing components, in accordance with the project's adopted standards, for integration into larger subsystems. When test components, such as drivers or stubs, must be created to support testing. • Responsible for developing and testing the test components and corresponding subsystems. • Track progress of the execution of tasks and report to the AD Leader on a timely basis • Ensure project documentation relating to the execution of allocated tasks complies with the process and standards specified.
Software Developer	• Responsible for developing and testing components, in accordance with the project's adopted standards, for integration into larger subsystems. When test components, such as drivers or stubs, must be created to support testing. • Responsible for developing and testing the test components and corresponding subsystems. • Track progress of the execution of tasks and report to the AD Leader on a timely basis • Ensure project documentation relating to the

Role	Responsibilities
	execution of allocated tasks complies with the process and standards specified.
Technical Support Team (TST)	
System Engineer	• Maintains the supporting development environment, both hardware and software, system administration, backup, and so on. • Support network, database and data migration for application development team.
Implementation Team	
Implementation and Support Leader (ISL)	• Review and revise detail work plan and escalate issues, risks and changes to the Project Manager for resolution. • Prepare implementation and support progress status for the project monthly report. • Coordinate with the implementation analyst team pertaining preparations of documentations, training and roll-out activities and matters pertaining to implementation. • Review and revise detail work plan and escalate issues, risks and changes to the Project Manager for resolution. • Undertake all tasks allocated by the Project Manager (as per the PMP)
Implementation Analyst	• Plans the product's transition to the user community and documents it in various associated documents. • Documentation of product manuals.

Role	Responsibilities
	• Provide support during the warranty period. • Assist with the planning, executing of product acceptance. • Track progress of the execution of tasks and report to the AD Leader on a timely basis

6.3 HeiTech Padu Responsibilities

1. HeiTech shall nominate a person as project manager with authority to execute and act on behalf of HeiTech. The Project Manager would be the focal point of contact for all matters pertaining to the implementation of e-NIC system for RPD.

2. Attend Steering committee and project progress meetings.

3. Conduct a customisation study and an interface study for the of e-NIC system as part of the User Requirements phase of the project.

4. Submit Functional Specification (FS) document for of e-NIC system.

5. Incorporate necessary changes in e-NIC software as per the agreed FS document.

6. Prepare and present a prototype of e-NIC system to the RPD for validation and feedback.

7. Provide a prototype e-NIC system for the RPD key users to train on throughout the project.

8. Assess the RPD key users on their knowledge of the system at various points in the project.

9. Test and install of the e-NIC system on the target hardware at RPD.

10. For interfacing of e-NIC system with the existing systems of RPD, HeiTech will develop the routines/scripts for the data that is to be transferred from of e-NIC system to the existing systems of RPD.

11. Provide training to the trainers for the usage of e-NIC system

12. Submit the documentation as per the details in the Proposal.

13. Assist RPD in preparing test data and test scripts/scenario for Acceptance Test.

14. HeiTech will provide three(3) year warranty support as from the date of acceptance of the individual module of e-NIC system. This is because system goes live in phases.

15. HeiTech will provide post warranty annual maintenance support for e-NIC software as mentioned in section Support and Maintenance.

16. Supply and install the Hardware and System software as per the project plan.

6.4   RPD Responsibilities

To enable HeiTech to carry out commitments to RPD, RPD will assist in the following ways:

1. Nominate a person as project manager who would be the focal point of contact for all matters concerning this project as well as the project team. The project manager should liaison with all departments of RPD for any information, clarifications or discussions sought by HeiTech.

2. Identify the key personnel from the RPD who will be interacting with HeiTech and provide the required information.

3. Organize and attend Steering Committee meetings.

4. Sign off on all deliverables from HeiTech within a reasonable time frame that does not impact on HeiTech project delivery.

5. Continuously train and learn of the e-NIC system throughout the project on the prototype environment provided by HeiTech so that by go live the RPD key users will be able to take ownership of the system.

6. Make available the necessary civil works and infrastructure ready to install the necessary hardware and networking supplied by HeiTech as per the proposal.

7. Provide approvals to HeiTech as per the project plan on completion of the specified activities.

8. Approve the Functional Specifications (FS) document, modified based on the findings of the customization study. The approved FS will form the basis of the acceptance of e-NIC application software.

9. Provide site for installation of the hardware.

10. Provide required infrastructure for installation of e-NIC system. These shall include but not be limited to electricity, air-conditioning and computer furniture.

11. Receive equipment and take possession upon supply of various components.

12. Ensure security of the delivered items during installation.

13. For interfacing the existing systems of RPD with of e-NIC application software, RPD will provide the data in the appropriate format for transfer from the existing system of RPD to e-NIC.

14. It is RPD's responsibility to co-ordinate and provide necessary data from existing software in the required format to HeiTech for interfacing with the proposed of e-NIC application software.

15. Prepare test data and test scripts/scenarios for Acceptance Tests. HeiTech will provide assistance.

16. Take main responsibility for the preparation, validation and clean-up of conversion data. HeiTech will provide assistance.

17. If manual input of data into the system is necessary, the RPD will take sole responsibility for entering the data under the supervision of HeiTech.

18. Conduct test plan in accordance with the project plan and issue respective certificates as per the project plan.

19. Provide classroom facility for conducting training at RPD premises and ensure that the right personnel are available and assigned to the training programmes, as per the detailed project schedule.

20. Provide consumables like stationary, printer toners, ribbons etc., during the implementation phase at no additional cost.

21. Provide necessary office facilities, such as air-conditioned offices, telephone, fax, printer etc., throughout the duration of the project at no additional cost. HeiTech project staff will use laptops wherever possible but in cases where the staff does not have laptops, the RPD will provide the necessary PCs during the project.

22. Provide the HeiTech team with one internal email address for communication to all the RPD personnel involved in the project.

23. Release payment to HeiTech as per the agreed milestones / deliverables.

6.5   Project Staff Summary (from bidding form format)

Project Staff Summary

Bidder must use separate sheet for each member in the team.

i.   **Candidate Summary**

Name of Bidder	HeiTech Padu Bhd

Position		Candidate	
Project Manager		x Prime ÿ Alternate	
Candidate information	Name of candidate Abd Rahman Saleh (Male)	Date of birth 31st August 1958	
	Professional qualifications Masters of Business Administration (1987) Governors State University, Illinois, USA Bachelor of Business Administration (Transportation & Physical Distribution) (1985) Western Illinois University, USA Advanced Diploma in Business Administration (Transport) (1982) University Institute Technology MARA, Shah Alam, Malaysia		
Present employment	Name of Employer HeiTech Padu Bhd		
	Address of Employer HeiTech Village Persiaran Kewajipan, USJ 1, UEP Subang Jaya P.O. Box 3086, 47509 Subang Jaya Selangor, Malaysia		
	Telephone 603 80268888	Contact (manager / personnel officer) Ahmad Abdul Ghani Senior VP, Human Resource Division	
	Fax 60380234152	Telex	
	Job title of candidate Senior Project Manager / Head of International Project Operations	Years with present Employer 12 years	

Summarize professional experience over the last twenty years, in reverse chronological order. Indicate particular technical and managerial experience relevant to the project.

From	To	Company/Project/ Position/Relevant technical and management experience
Jan 2007	Present	HeiTech Padu Bhd / International Business Development and Operations Division / Senior Project Manager - As Program Manager on the management and operations of all projects outside Malaysia. - As Domain Expert on National (Civil) Registration System.
Jan 2005	Dec 2006	HeiTech Padu Bhd / Systems Integration Division / International Business Unit As Program Manager on the project delivery, management and operations of : - Indonesian National ID project in North Sulawesi, Indonesia - System features – fingerprint biometrics, live photo capture, live signature capture and ID cards personalisation.
Jan 2004	Dec 2004	HeiTech Padu Bhd / Systems Integration Division / Project Management Office / Project Operations (Audit) Manager - Perform operations and compliance audit on projects - Provide consultancy and mentoring services on Project Management and Quality Management System (QMS) discipline and compliance
Jan 2003	Dec 2003	HeiTech Padu Bhd / Systems Integration Division / Project Manager Project: Employees Provident Fund (EPF) of Malaysia - Application development to migrate 10 million records and fingerprint images (and minutiae) from National Registration Department of Malaysia into new Oracle database. - Perform data cleansing in new database.
Jan 2002	Dec 2002	HeiTech Padu Bhd / Systems Integration Division / Project Manager Project: Farmers Association of Malaysia Development of customized application system for use by over 250 Farmers Association offices throughout Malaysia. System functions – membership, accounting and project tracking.
Jan 2001	Dec 2001	HeiTech Padu Bhd / Systems Integration Division / Head of Project Practice, Methodology & Standards - Development of Project Management Information System (PROMISE) Guidelines for use by project managers - Management and monitoring of ISO / QMS compliance for all projects

May 1995	Dec 2000	HeiTech Padu Bhd / Systems Integration Division / Senior Systems Analyst / Team Leader
		
		Project : National Registration Department of Malaysia
		
		• Lead on the business requirement, conceptual system design, user documentation and testing for the following modules:
		
		   • Birth system
		
		   • Death system
		
		   • Child Adoption system
		
		   • Citizenship system
		
		   • Marriage & Divorce system
		
		   • Cash Collection and administration system
		
		   • Blacklist & Enforcement system

1988	April 1995	Malaysian International Shipping Corporation / Container Logistics Department / Systems Operation Executive • Application maintenance of Container Tracking System. Linked-up to over 80 agency offices worldwide. • Container logistics management and operations.

ii.   Candidate Summary

Name of Bidder   HeiTech Padu Bhd

Position		Candidate	
Project Manager		ÿ Prime x Alternate	
Candidate information	Name of candidate Ibrahim Yusoff (Male)	Date of birth 15 March 1965	
	Professional qualifications		
	Bachelor in Science (Computer Information System), California State University Fresno, USA		
Present employment	Name of Employer HeiTech Padu Bhd		
	Address of Employer HeiTech Village Persiaran Kewajipan, USJ 1, UEP Subang Jaya P.O. Box 3086, 47509 Subang Jaya Selangor, Malaysia		
	Telephone 603 80268888	Contact (manager / personnel officer) Ahmad Abdul Ghani Senior VP, Human Resource Division	
	Fax 60380234152	Telex	
	Job title of candidate Program Manager	Years with present Employer 17	

Summarize professional experience over the last twenty years, in reverse chronological order. Indicate particular technical and managerial experience relevant to the project.

From	To	Company/Project/ Position/Relevant technical and management experience
Jan 2002	Present	HeiTech Padu Bhd / National Registration Department Malaysia Project (NRD PROJECT) / Project Manager • Managing the Maintenance Contract of National Registration Dept's ICT project • Managing the Application Development and Implementation of the Government Multi-purpose Card (GMPC) NRO from Dec 2005 until May 2007. • Managing the Agency Link-up System (ALIS) project where this central database of biometrics data are accessed by external agencies. • Managing the Government's Public Service Portal (PSP) project while working in relation with MAMPU, the Coordinator of the project. • Managing the ALIS-MCAD for Enforcement of security document and as a tools for the government officers during special operation. • Managing the Security Management System (SMS) of NRD by implementing the Biometrics Door Access and Attendance Systems for NRD. • Managing the ICT Upgrade project for NRD. NRD is using Automated Fingerprints Identification System (AFIS) as the core system in authenticating and identifying the identity of a citizen and permanent resident of Malaysia. The main central system is based on IBM Mainframe S390 with another backup system with similar machine capacity in the Disaster Recovery Center (DRC) at different location. The MyKad production system is being managed by a DC9000 machines which are installed centrally at the NRD Headquarters. The Agency Link-up System (ALIS) is based on a web application (browser based) and accessible 23X7.
April 1995	Dec 2001	HeiTech Padu Bhd / National Registration Department Malaysia Project (NRD PROJECT) / Change Management Consultant • Leading a team of system implementers and change agents • Prepared the strategies to implement Sistem Informasi Rekod penduduk Negara (SIREN) for all 187 branches of NRD. • Managing the training programme for end users to ensure smooth transfer of technology • Outlined the logistical requirement for systems implementation • Managing to ensure ground and technical support for system stabilization • Conducted the post implementation review (PIR) to further enhanced the systems requirement

Aug 1990	March 1995	HeiTech Padu Bhd / Post Offices Malaysia Project Post Offices Project) / Change Management Analyst
		• Leading and supervising the project Implementation of Public Services Network (PSN) Systems.
		• Development of the processes and operating procedures of PSN
		• Development of the documentations for user manuals and training materials
		• Logistics management
		• Systems testing and Software packaging
		• Leading the Helpdesk/ Customer Support division
		• Provide Network Support and operation
		• Service Level Reporting
		The Public Services Network (PSN) system is built on top of the Pos Malaysia's One Stop Payment (PANTAS) which were based on the OS2 and DOS application systems. Middleware used was FBSS (an IBM product)

iii. Candidate Summary

Name of Bidder HeiTech Padu Bhd

Position		Candidate	
Project Manager		ÿ Prime x Alternate	
Candidate information	Name of candidate	Date of birth	
		1966	
	Professional qualifications		
	BSc Computer Science, George Washington University, Washington DC, USA (1989)		
Present employment	Name of Employer		
	HeiTech Padu Bhd		
	Address of Employer		
	HeiTech Village		
	Persiaran Kewajipan, USJ 1, UEP Subang Jaya		
	P.O. Box 3086, 47509 Subang Jaya		
	Selangor, Malaysia		
	Telephone 603 80268888	Contact (manager / personnel officer)	
		Ahmad Abdul Ghani	
		Senior VP, Human Resource Division	
	Fax 60380234152	Telex	
	Job title of candidate	Years with present Employer	
	Project Manager cum Domain Expert	18 Years	

Summarize professional experience over the last twenty years, in reverse chronological order. Indicate particular technical and managerial experience relevant to the project.

From	To	Company/Project/ Position/Relevant technical and management experience

Oct 2005	Present	HeiTech Padu / Industry Consultant / Domain (Subject Matter) Expert Achievements/Responsibilities included: • Formulate, recommend and participate in the development of business and technical solutions in domain area for local and international acquisition activities to assist in achievement of sales target. • Research on business and technology best practices and trends available in the market to enhance knowledge in the domain area; • Participate in knowledge sharing activities to expose acquisition and related project team on business and technology trends for exploration of new sales prospect; • Conduct fact finding activities such as interview, survey and/or workshop with potential customers to formulate and propose the right solution for them; • Participate in proposal development discussion in replying to tender, RFP or other proposal to assist the development of "winning proposal".
Feb 2003	Present	HeiTech Padu Bhd/ Dept. of Immigration and Emigration Sri Lanka Project / Team Leader/ AD Leader – Project Manager Technical and Management experience: • Involved in the project to supply 2,000,000 blank travel documents and a printing system (hardware and software) that produces Machine Readable Passports, which conform to the International Civil Aviation Organization (ICAO) Document 9303 standard with unique security featuresLead, coordinate and manage application development team activities, deliverables and issues. • Manage the overall project activities. • Reference point on issues relating to project. • Customer/ vendor management. • Conduct the requirement study, analysis and design for the Travel Document Printing System for Department of Immigration and Emigration, Sri Lanka. • Lead the application development and implementation of the system. • Maintain communication with partners and users. Client Server on Windows 2000 and MS SQL with ODBC connection to Oracle .

Jan 1999	Dec 2005	HeiTech Padu Berhad/ Department of Immigration Malaysia (Jabatan Immigration Malaysia)/ AD Leader, Functional Leader, System Analyst
		Technical and Management experience:
		• Involved in the Modernization and Computerization of the Immigration Department. Malaysia which include design develop and maintain the business applications, data center and network
		• Application Development Leader
		• Assist and assume backup role for the IMM Project Manager
		• Responsible in ensuring the application maintenance activities are performed according to the contract.
		• Customer/vendor management
		• Lead Functional Team that is responsible to gather user requirement, provide program specification and ensure that the deliverables meet requirement.
		• Functional Analyst for IMM Project – Passport System, Travel Doc System and Permit and SPT System.
		• Carry out Business Requirement Analysis
		• Come up with the Conceptual System Design.
		• Design forms and document.
		• Come out with the program specification for the programmers.
		• Conduct the System Test, Integration Test and User Acceptance Test.
		• Provide support on system or procedural matters to the Implementation Team, Help Desk and Users.
		• Conduct presentations of proposals to Users.
		• Write proposal papers on any new concept.
		• Produce the Disaster Recovery Plan and Procedures for each system.
		3 tier Client Server where branch system sits on Windows and OS/2 which later migrated to Windows 2000 and Ms SQl. The Host system is on IBM Mainframe with DB2
		Technical Expertise/Experience/Technology

		• Environments (Hardware/Operating Systems/Networks)
		     o Windows,
		 • Techniques/Methodologies
		     o SDLC
		 • Languages
		     o Fortran, Pascal, C
		 • Office Suite Tools
		     o MS Office

iv.   **Candidate Summary**

Name of Bidder   HeiTech Padu Bhd

Position		Candidate	
Software/System/Enterprise Architect		x Prime ÿ Alternate	
Candidate information	Name of candidate Abd Rahman Bin Abdul Malik (Male)	Date of birth 5th Dec 1964	
	Professional qualifications Diploma in Computer Science, Mara Institute of Technology, Malaysia (1985) Microsoft Certified System Engineer (1988)		
Present employment	Name of Employer HeiTech Padu Bhd		
	Address of Employer HeiTech Village Persiaran Kewajipan, USJ 1, UEP Subang Jaya P.O. Box 3086, 47509 Subang Jaya Selangor, Malaysia		
	Telephone 603 80268888	Contact (manager / personnel officer) Ahmad Abdul Ghani Senior VP, Human Resource Division	
	Fax 60380234152	Telex	
	Job title of candidate Solution Architect	Years with present Employer	

Summarize professional experience over the last twenty years, in reverse chronological order. Indicate particular technical and managerial experience relevant to the project.

From	To	Company/Project/ Position/Relevant technical and management experience
April 2003	Present	HeiTech Padu Berhad/Consultancy and Services/Software Architect Providing advice and consultancy on technical proposal, architecture design and technology updates

June 2001	March 2003	HeiTech Padu Berhad/ MATRIIX (MITI & Agencies Trade & Industry Information Exchange) Phase 1/Technical Leader Work as Technical Leader at MATRIIX Phase 1 Project. Involved in architecting the overall solution for MATRIIX phase 1.
July 1995	Dec 1999	HeiTech Padu Berhad/ Modernisation, Computerisation and System Maintenance of Immigration Department of Malaysia/ Branch Support Leader Work as Branch Support Leader at JIM Computerisation Project. Involved in application development and branch support analyst for JIM's Computerized System: • Assist on software and hardware requirement • Provide technical support to users on application, system software, hardware and LAN/WAN • Develop and provide necessary application installation tools • Design system architecture on multiple platform such as, OS2, WIN 3.1x and Window NT • Assist Application Development team on design and develop JIM 's system • Develop applications using C, C++ and VISUAL AGE on multiple platform such as DOS, OS2, WIN 3.1x and Window NT • Produce program and technical documentation
April 1992	June 1995	HeiTech Padu Berhad/ Computerization of Road Transport Department of Malaysia Achievements/Responsibilities included: Work as System Analyst at JPJ Computerisation Project: • Provide technical support to users on application, system software, hardware and LAN/WAN • Develop and provide necessary application installation tools • Design system architecture on platform such as OS2 and DOS • Assist Application Development Leader on design and develop JPJ's system • Develop applications using C language on platform such as DOS and OS2. • Produce program and technical documentation
		Technical Experiences: Hardware/Operating Systems/Networks Windows Server 2003/Windows Server 2000/WinNT/XP OS2, Linux Ubuntu nniques/Methodologies abases Microsoft SQL Server, Oracle, DB2 guages C#, C++, Cobol, PL1 elopment Tools MS Visual Studio ce Suite Tools MS Office rs Areas MQ Series, COM/DCOM, LANDP

v.　　Candidate Summary

Name of Bidder　　HeiTech Padu Bhd

Position		Candidate	
Software/System/Enterprise Architect		ÿ　　　Prime　x　　Alternate	
Candidate information	Name of candidate Hjh Nazariah Binti Abdullah (Female)	Date of birth 10 Nov 1963	
	Professional qualifications • Bachelor Degree in Computer Science from the Bachelor Degree. in Computer Science from the University Of Minnesota, Duluth, USA with minor work in Accounting Professional training • SOA- Building Service – Oriented Architecture		
Present employment	Name of Employer HeiTech Padu Bhd		
	Address of Employer HeiTech Village Persiaran Kewajipan, USJ 1, UEP Subang Jaya P.O. Box 3086, 47509 Subang Jaya Selangor, Malaysia		
	Telephone　　603 80268888	Contact (manager / personnel officer) Ahmad Abdul Ghani Senior VP, Human Resource Division	
	Fax　60380234152	Telex	
	Job title of candidate Principle Solution and Consultancy	Years with present Employer 11 years	

Summarize professional experience over the last twenty years, in reverse chronological order. Indicate particular technical and managerial experience relevant to the project.

From	To	Company/Project/ Position/Relevant technical and management experience

Sept 1996	Present	HeiTech Padu Berhad/ Principal and Consultancy Division/ Principal Management Experience • Managing a team of Solution Architects, Solution Consultants and Software Engineers providing advice and consultancy on technical proposal, architecture design and technology updates. • Manage a team in providing technical support to customers implementing real-time online applications in a 3-tier environment.
Jan 2004	Dec 2007	HeiTech Padu Berhad/ Malaysia Pilgrimage Board (Tabung Haji) project/ Technical leader Technical and Management Experience: • Lead the application development team on the development of the core system of Tabung Haji. The core system of Tabung Haji comprises of Deposit, Hajj, Human Resource and Property Management • Deployment of the core systems of Tabung Haji covers Malaysia as well as Saudi Arabia. Deployment approach for this project was a "Big Bang" implementation over the weekend covering about 121 branches nationwide and Jeddah. • Also function as the lead architect that designs the data synchronisation mechanism between Malaysia and Saudi Arabia to keep current the Depositor information between the two servers in Malaysia and Jeddah during the Hajj season.
Sept 1996	Dec 2003	HeiTech Padu Berhad/ National Registeration Department of Malaysia / Solution Architect and Technology Lead Technical and Management Experience: • Designed the solution architecture for the overall application architecture framework. One of the outstanding implementation for this project is the incorporation of biometric solution specifically AFIS as part of the identity card issuance workflow. Performed benchmark for the AFIS system and design the interface requirements for the identity card system incorporating AFIS technology. • Member of the core technical designer team for the IBM MQ Series implementation in this project. The NRD project also implemented IBM MQ Series for the first time in Malaysia.
		Technology Environments on Hardware/Operating Systems/Networks Visual C++, JAVA, MQ Series, COM/DCOM, IBM DB2 UDB, Microsoft SQL, CICS, LANDP, IBM Artour.

vi.   **Candidate Summary**

Name of Bidder	HeiTech Padu Bhd

Position		Candidate	
Technical leader		x Prime ÿ Alternate	
Candidate information	Name of candidate	Date of birth	
	Zurainah Ahmad (Female)	11 September 1964	
	Professional qualifications		
	• Bachelor of Science in Computer Science,University of Georgia, USA		
Present employment	Name of Employer		
	HeiTech Padu Bhd		
	Address of Employer		
	HeiTech Village		
	Persiaran Kewajipan, USJ 1, UEP Subang Jaya		
	P.O. Box 3086, 47509 Subang Jaya		
	Selangor, Malaysia		
	Telephone 603 80268888	Contact (manager / personnel officer)	
		Ahmad Abdul Ghani	
		Senior VP, Human Resource Division	
	Fax 60380234152	Telex	
	Job title of candidate	Years with present Employer	

Summarize professional experience over the last twenty years, in reverse chronological order. Indicate particular technical and managerial experience relevant to the project.

From	To	Company/Project/ Position/Relevant technical and management experience

Jan 2004	Present	HeiTech Padu Berhad/National Registration Department (NRD) (Jabatan Pendaftaran Negara,Malaysia)/ Application Development Manager
		
		Technical/ Management experiences
		
		• Implemented set of practices identified by the project quality management plan that ensure the integrity and quality of project artifacts.
		• Review and update detail work plan regularly from the respective team leader and ensure task assignment been effectively.
		• Escalated issues, risks and changes to the Project Manager for resolution.
		• Managing the application development team on the system scope and the application development implementation, implement change request on issues related to the National Registeration Department (NRD) core business system viz:
		   - Birth, death and adoption registration
		   - Identity card application. The Automated Fingerprint Identification System (AFIS) was introduced as a means of identifying and verifying each id holder. MQ Series is used for transporting data from branch to AFIS central system.
		   - Marriage & divorce applications
		   - Citizenship applications where a workflow system is introduced
		   - Enforcement system
		   - Revenue collection system
		
		In addition to managing the core businesses system, also provides other services such as agency linkup which allow other agencies to query some citizen information from NRD. These services are provided over the counters at NRD branches in West & East Malaysia where all data are retrieved and updated from and to the central database at NRD HQ.
		
		The NRD systems are developed on a 3-tier Client Server architecture, using local SQL database at the branches Each branch will access information from the central database via WAN using SNA LU6.2 network protocol for realtime online retrieval and update to central database The backend system consists of IBM mainframe with DB2 as the central database.

Jan 2001	Dec 2003	HeiTech Padu Berhad/National Registration Department (NRD) / Senior System Analyst Technical Experience • Performed analysis and design on the implementation of changes requests. • Lead and managed the PC-based application team.

Jan 1996	Dec 2000	HeiTech Padu Berhad/National Registration Department (Jabatan Pendaftaran Negara,Malaysia)/ System Analyst Technical Experience • Performed system analysis & design for the counter systems of all NRD's core businesses. • Assisted the project team on the development of the NRD counter systems as developer.
		Experience in Technology Environments (Hardware/Operating Systems/Networks) Client-server, Windows, SNA, LU6.2, LAN & WAN (Techniques/Methodologies) Ernst & Young ADW Navigator, CMMI Level 3, Rational • Databases SQL • Languages C, C++,Pascal, Fotran,Assembler,Cobol,DBIV • Development Tools Visual C++ • Configuration Management Tools Visual Soft Safe • Office Suite Tools Lotus Smartsuite, Microsoft Office

vii.   Candidate Summary

Name of Bidder   HeiTech Padu Bhd

Position		Candidate	
Technical Leader		ÿ Prime x Alternate	
Candidate information	Name of candidate	Date of birth	
	Ruziyana Binti Muhammad Mukrin (Female)	1ST February, 1970.	
	Professional qualifications		
	Degree in Computer Science, University of Science Malaysia		
Present employment	Name of Employer		
	HeiTech Padu Bhd		
	Address of Employer		
	HeiTech Village		
	Persiaran Kewajipan, USJ 1, UEP Subang Jaya		
	P.O. Box 3086, 47509 Subang Jaya		
	Selangor, Malaysia		
	Telephone 603 80268888	Contact (manager / personnel officer)	
		Ahmad Abdul Ghani	
		Senior VP, Human Resource Division	
	Fax 60380234152	Telex	
	Job title of candidate	Years with present Employer	
	Senior System Analyst	Approximately 3 years	

Summarize professional experience over the last twenty years, in reverse chronological order. Indicate particular technical and managerial experience relevant to the project.

From	To	Company/Project/ Position/Relevant technical and management experience
Oct, 2007	Present	Company : Heitech Padu Bhd.
		Project : TIA Insurance System
		Position : Senior System Analyst
		Experience: Analyze business requirement for customization project for insurance system product. Responsible to establish CMMI compliance for Level 3 for this project.

May,2005	July, 2007	Company : Heitech Padu Bhd.
		Project : KTP Indonesia Project
		Position : Senior System Analyst
		Experience :
		1. Lead the development team for developing application to produce national ID for the residents of North Sulawesi, Indonesia. The system involved registration of personal information, biometric finger print matching and ID card printing. Software used is Microsoft Visual C++ for registration, NEC SDK for finger print matching and EDI Secure SDK for ID card printing. Database used are Ms SQL and DB2.
		2. Established CMMI Maturity Level 3 for this project.
Oct,2004	Apr,2005	Company: Padusoft Sdn. Bhd.
		Project : Maybank – Expert application scoring
		Position : Software Consultant
		Experience : Software consultancy for expert application scoring system which is used for evaluation of loan application for mortgage, credit card and auto finance. Also involved in coordinating the testing for banking users. Software used is Fair Isaac Strategyware product.
May, 2001	Sept,2004	Company : FTM Consulting Services
		Project : Jackson National Life Insurance
		Position : Software Engineer
		Experience :
		1. Application development of an Insurance System using Smalltalk language.
		2. Support of Document Management product which is Docuflo.
Sept,1997	Dec,2000	Company : Software Alliance
		Project : Registration Department of Malaysia
		Position : Analyst Programmer
		Experience : Application development of Registration Department System using Microsoft Visual C++ language on Win NT operating system. Database used are DB2 and Ms SQL.
May,1995	Aug,1997	Company : Software Alliance
		Project : Immigration Department of Malaysia
		Position : Programmer
		Experience : Application development of Immigration System using C language on DOS operating system.

viii.   Candidate Summary

Name of Bidder   HeiTech Padu Bhd

Position		Candidate	
Database Specialist		x Prime ÿ Alternate	
Candidate information	Name of candidate Rosdin Abdul Rahman	Date of birth 12 April 1975	
	Professional qualifications • Bachelor in Computer Science (Hons) University Technology of Malaysia • ITIL Certified Professional • Oracle9i Sales Champion (Oracle PartnerNetwork) • Oracle9i Technical Champion (Oracle PartnerNetwork) • Oracle10g Database Specialist Sales Champion (OPN)		
Present employment	Name of Employer HeiTech Padu Bhd		
	Address of Employer HeiTech Village Persiaran Kewajipan, USJ 1, UEP Subang Jaya P.O. Box 3086, 47509 Subang Jaya Selangor, Malaysia		
	Telephone 603 80268888	Contact (manager / personnel officer) Ahmad Abdul Ghani Senior VP, Human Resource Division	
	Fax 60380234152	Telex	
	Job title of candidate Senior System Engineer	Years with present Employer 9 years	

Summarize professional experience over the last twenty years, in reverse chronological order. Indicate particular technical and managerial experience relevant to the project.

From	To	Company/Project/ Position/Relevant technical and management experience
Jul 1997	Present	HeiTech Padu Berhad/Permodalan Nasional Berhad/Database Administrator a) Investment Management System (IMS) § Responsible : Database Administrator § Technology : HP TRU64 Unix ,Oracle Database Enterprise Edition. § Activity : Production System Support & Disaster Recovery b) Corporate Information System (CIS) § Responsible : Database Administrator § Technology : HP TRU64 Unix, Oracle Database Enterprise Edition. § Activity : Production System Support & Disaster Recovery c) Consolidated Storage & Servers System. (CSS) § Responsible : System Administrator § Technology : VMware ESX Server § Activity : Production System Support & Disaster Recovery
May 2007	Present	HeiTech Padu Berhad/Amanah Mutual Berhad/Database Administrator a) Integrated Unit Trust System (IUTS) • Responsible : Database Administrator • Technology : SUN Solaris Unix, Oracle Database Enterprise Edition. • Activity : Production System Support & Disaster Recovery
Jan 2005	Jun 2005	HeiTech Padu Berhad/Jabatan Imigresen Malaysia/Database Administrator a) VISA & Pass System § Responsible : Database Administrator § Technology : SUN Solaris Unix, Oracle Database Enterprise Edition § Activity : New Hardware Installation and Database Migration.
Jan 2001	Present	HeiTech Padu Berhad/HR and Financial System/Database Administrator a) PaduPeople & PaduFin System § Responsible : Database Administrator § Technology : Windows 2003 Server, Oracle Database Enterprise Edition, SQL Server. § Activity : Production System Support & Disaster Recovery

ix.   Candidate Summary

Name of Bidder   HeiTech Padu Bhd

Position		Candidate
Database Specialist		ÿ Prime x Alternate
Candidate information	Name of candidate Mohd Nawawi Bin Buchik	Date of birth 02nd May 1972
	Professional qualifications Diploma In Computer Sciences	
Present employment	Name of Employer HeiTech Padu Bhd	
	Address of Employer Level 4, HeiTech Village Persiaran Kewajipan, USJ 1, UEP Subang Jaya P.O. Box 3086, 47509 Subang Jaya Selangor, Malaysia	
	Telephone 603 80268888	Contact (manager / personnel officer) Ahmad Abdul Ghani Senior VP, Human Resource Division
	Fax 60380234152	Telex
	Job title of candidate Senior Software Developer	Years with present Employer 11 years

Summarize professional experience over the last twenty years, in reverse chronological order. Indicate particular technical and managerial experience relevant to the project.

From	To	Company/Project/ Position/Relevant technical and management experience
May 1996	Present	HeiTech Padu Berhad SIREN System for Jabatan Pendaftaran Negara Senior Software Developer Technical experience: • Develop and maintain host interface, online transaction, LU2 inquiry, support programs and MQ Series transaction for Birth, Adoption, Death, Identity Card and Cash Admin System. • Maintain JPN Database Design. • Involve in supporting JPN Disaster Recovery Activity for Application. • Involve in helpdesk problem log monitoring and solving. • Involve in developing inquiry program and populate host data to ALIS Server. • Involve in developing centralize user ID transaction for manage JPN user ID for LU2 inquiries system. • Involve in JPN Relocation Activity from Petaling Jaya to Putrajaya. Management experience: • Manage host application team consist of 2 System Analyst, 4 Analyst Programmer • Coordinate meeting with customer on Helpdesk Log and Change Request/Requirement.

Jan 2005	June 2007	HeiTech Padu Berhad
		IJPN System for National Rollout (JPN)
		Senior Software Developer
		Technical experience:
		• Develop and maintain host interface, online transaction, LU2 inquiry, support programs and MQ Series transaction for MyKad system.
		• Maintain JPN Database Design.
		• Involve in supporting JPN Disaster Recovery Activity for Application.
		• Involve in helpdesk problem log monitoring and solving.
		• Manage successfully in JPN Data Conversion Activity from SIREN/GSCB system to IJPN system.
		• Involve in developing centralize user ID transaction for manage JPN user ID for LU2 inquiries system.
		• Conduct technical training on IJPN System to customers.
		Management experience:
		• Manage host application team consist of 1 System Analyst, 2 Analyst Programmer
		• Lead and Manage Technical Team in JPN Data Conversion Activities.
May 1994	Apr 1996	Enaizi Computer Sdn Bhd
		Clinic and Hotel System
		Programmer
		Technical experience:
		• Develop and maintain Clinic System using Clipper and DBase IV for Damai Service Hospital and Roopi Medical Center
		• Develop and maintain Hotel System using Clipper and DBase IV for Sharie Lodge Sdn Bhd.

x.   Candidate Summary

Name of Bidder   HeiTech Padu Bhd

Position		Candidate
System Integration Specialist		x Prime ÿ Alternate
Candidate information	Name of candidate Jahir Hussain Bin Othman (Male)	Date of birth 04/01/1969
	Professional qualifications Bachelor of Science (Computer & Mathematical Science) Victoria University of Technology , Melbourne– Australia (1997)	
Present employment	Name of Employer HeiTech Padu Bhd	
	Address of Employer HeiTech Village Persiaran Kewajipan, USJ 1, UEP Subang Jaya P.O. Box 3086, 47509 Subang Jaya Selangor, Malaysia	
	Telephone 603 80268888	Contact (manager / personnel officer) Ahmad Abdul Ghani Senior VP, Human Resource Division
	Fax 60380234152	Telex
	Job title of candidate Senior Software Developer	Years with present Employer 7 years

Summarize professional experience over the last twenty years, in reverse chronological order. Indicate particular technical and managerial experience relevant to the project.

From	To	Company/Project/ Position/Relevant technical and management experience
July 1998	Present	HeiTech Padu Berhad/National Registration Department Malaysia /Senior Software Developer • Developing the Technical Architecture including Development Architecture, Operations Architecture and Execution Architecture for Birth, Adoption and Payment Collection System • Performing system set-up, monitoring, maintenance, administration and back-ups • Setting-up and administering the project's technology infrastructure • Developing the Disaster Recovery Approach. • Logical and physical database planning, configuration and maintenance. • Preparing backup and recovery procedures. • Application development for Payment Collection System, MyKid dispatch system
Dec 1996	Jan 1997	Software Alliance Malaysia - Multimedia Development Corporation/System Engineer Responsible for installation, help desk and Lotus Notes administrator functions for users in Multimedia Development Corporation (MDC) and government agencies associated with Malaysia's Multimedia Super Corridor (MSC) project. .
Apr 1996	June 1996	Software Alliance Malaysia - PNB Information Technology Sdn. Bhd Tasks included writing application programs in Lotus Notes R3.X and preparing program specification and user guide. Also assisted in tests for integration with Oracle based HR application on AIX platform
Nov 1995	March 1996	Software Alliance Malaysia – Mesiniaga Berhad Malaysia Involve in Hospital Information management and accounting system which handle inpatient and outpatient database. The process involve from a patient registration to their billing. I was involve in application programs in Centura (GUPTA) SQL*Windows and preparing program specification**.**

Technical Skill

MS SQL Database Administration
Window NT 4.0
Windows 2000
IBM SNA Communication Server
IBM MQ SERIES

- Enabling Network with TCP/IP
- Developing and Designing Applications in MS SQL ,INFORMIX AND SQL GUPTA

Operating Systems

UNIX, Windows NT, MS-DOS, MS WINDOWS 3.1, WINDOWS 9x,Windows 2000

Languages

Visual C++, LOTUS SCRIPT

RDBMS

MS SQL Server 2000

As a Data Base Administrator, Handled the following Responsibilities

- Installing and upgrading the SQL server 6.5 to SQL Server 2000.
- Allocating system storage and planning future storage requirements for the database system.
- Creating primary database
- Creating primary objects (tables, views, indexes)
- Modifying the database structure.
- Enrolling users and maintaining system security.
- Planning for backup and recovery of database information.
- Backing up and restoring the database.
- Create stored procedures for applications

xi. **Candidate Summary**

Name of Bidder   HeiTech Padu Berhad

Position		Candidate	
Team Leader		x Prime ÿ Alternate	
Candidate information	Name of candidate	Date of birth	
	Khairuniza Binti Abd Samad (Female)	09th. December 1971	
	Professional qualifications		
	Bachelor in Computer Science, University Technology of Malaysia		
Present employment	Name of Employer		
	HeiTech Padu Berhad		
	Address of Employer		
	HeiTech Village		
	Persiaran Kewajipan, USJ 1, UEP Subang Jaya		
	P.O. Box 3086, 47509 Subang Jaya		
	Selangor, Malaysia		
	Telephone 603 80268888	Contact (manager / personnel officer)	
		Ahmad Abdul Ghani	
		Senior VP, Human Resource Division	
	Fax 60380234152	Telex	
	Job title of candidate	Years with present Employer	
	Senior System Analyst	11 Years and 7 Months	

Summarize professional experience over the last twenty years, in reverse chronological order. Indicate particular technical and managerial experience relevant to the project.

From	To	Company/Project/ Position/Relevant technical and management experience
1996	Present	HeiTech Padu Berhad / Jabatan Pendaftaran Negara Malaysia (National Registration Department) / Senior System Analyst • Requirement study, analysis and design for systems : • Citizenship • Enforcement • Blacklist • Codes Maintenance • Marriage & Divorce System (Phase 3) • Planning, testing, implementation of the systems • Technical support and Administrator for Citizenship WorkFlow System • Consultations in overall SIREN/IJPN System • Testing and implementation of IJPN ePayment System • Analysis and design for global changes in SIREN System • Monitoring and troubleshoot problems related to systems and business procedures • Prepare technical and manual documentations • Prepare proposals and involved in tender preparations • Prepare Contract for GMPC Connectivity Project • As one of the facilitator for JPN Core Team trainings • Train and transfer of technology to the IT personnel
1995	1996	Jabatan Perangkaan Malaysia (Malaysia Statistical Department) / System Analyst Maintain Malaysia statistical systems.
1994	1995	Business Computer Holdings (BCH) / Sunway College / System Analyst • Installation of server and system implementation • Technical support and coordination for other BCH's clients • Prepare tender and evaluate products.

xii.   Candidate Summary

Name of Bidder   HeiTech Padu Bhd

Position	Candidate
Team Leader	ÿ Prime x Alternate
Candidate information	Name of candidate **Umi Kalsom bt Abu Kassim (Female)**	Date of birth 20 April 1967
	Tertiary Qualification • Bachelor of Computer Science (Hons - USM) Professional Training • Attending Malaysia Institute of Management (MIM) Leadership Program organized by HeiTech Padu Berhad • Unified Modelling Languauge (1998) • Object Oriented Analysis and Design (1997) • Java Programming for Non Programmers (2005) • Rational Rose (2000) • Software Testing (2006) • Requirement Analysis and Management in 2006	
Present employment	Name of Employer HeiTech Padu Bhd	
	Address of Employer HeiTech Village Persiaran Kewajipan, USJ 1, UEP Subang Jaya P.O. Box 3086, 47509 Subang Jaya Selangor, Malaysia	
	Telephone 603 80268888	Contact (manager / personnel officer) Ahmad Abdul Ghani Senior VP, Human Resource Division
	Fax 60380234152	Telex
	Job title of candidate Functional Leader	Years with present Employer

Summarize professional experience over the last twenty years, in reverse chronological order. Indicate particular technical and managerial experience relevant to the project.

From	To	Company/Project/ Position/Relevant technical and management experience
March 2006	Present	HeiTech Padu Berhad/ System Integrations and Maintenance Phase for the Department of Immigration Malaysia/ Functional Leader Technical and management experience: • Delivered Change Request as per requirement • Performed functional testing and managed user testing • Delivered training and briefing for change request • Lead a team of application analysts for managing change request • Performed trouble shooting on issues/problems raised by users
Jan 2000	Feb 2006	HeiTech Padu Berhad/Public Service Department, Pension Project/ System Development, Functional Leader Technical and management experience: • Requirement Gathering and Delivered As is and to be Report • Done Analysis and Design for Sistem Kewangan dan Perakaunan (a core system in Pension Project) and Delievered CSD and TSD Report • Done all types of testing for System Kewangan and Perakaunan ie. Integration test, UAT, PAT, System Test, Stress Test, Parallel system testing and FAT • Done Requirement Study, Analysis and Design for link-up to other agencies such as Banks, Bahagian Pinjaman Perumahan and KWSP • Done Integration testing for overall system functions including batch processes for pension monthly payment • Manage User Expectations • Manage Delivery Schedules • Trouble shoot problems raised by Users • Lead a team of business analyst
Aug 1998	Dec 1999	HeiTech Padu Berhad/ Y2K Projects for the new millennium for the Malaysian Government and Agencies viz. Road Transport Department (JPJ), Malaysia Airlines System (MAS), Department of Immigration Malaysia (JIM) Projects / Y2K Tester and Administrator Technical and management experience: • Performed study on Y2K bugs and identified systems, software and hardware that will be affected by Y2K bugs • Delivered Test Report and administrator testing on Y2K Bugs for the above mentioned system

		Summary of Technical Experience: (Hardware/Operating Systems/Networks) • Windows XP, Windows 2000 • IBM Mainframe environment • Web based application Techniques/Methodologies CMMI, ADVISE, UML, OOAD, Waterfall Methodology/ Databases Relational DBMS - DB2, MS SQL, Oracle Languages CSP , COBOL Design Tools Rational Roles, Navigator Configuration Management Tools Visual Source Safe Office Suite Tools Lotus Notes, Microsoft Office – Words, Excel, PowerPoint

xiii. Candidate Summary

Name of Bidder   HeiTech Padu Bhd

Position	Candidate
Team Leader	ÿ Prime x Alternate

Candidate information	Roslan Hassan (Male)	19th December 1955
	Professional qualifications Diploma in Computer Science, ITM Shah Alam, Selangor, Malaysia (1977)	
Present employment	Name of Employer HeiTech Padu Bhd	
	Address of Employer HeiTech Village Persiaran Kewajipan, USJ 1, UEP Subang Jaya P.O. Box 3086, 47509 Subang Jaya Selangor, Malaysia	
	Telephone 603 80268888	Contact (manager / personnel officer) Ahmad Abdul Ghani Senior VP, Human Resource Division
	Fax 60380234152	Telex
	Job title of candidate Assistant Project Manager	Years with present Employer Approximately 3 years

Summarize professional experience over the last twenty years, in reverse chronological order. Indicate particular technical and managerial experience relevant to the project.

From	To	Company/Project/ Position/Relevant technical and management experience
01/02/2005	Current	Company: HeiTech Padu Berhad **Project:** National ID registrations and printing Project for the District Government of Minahasa, Sulawesi Utara, Indonesia Relevant technical and management experience: Leading the team of developers and support staff to design, develop, implement and support an online system to register and print Indonesian National ID for one district in Sulawesi Utara. The application development project involves deploying capturing devices viz. finger print scanner, signature pad, digital camera and bar-code reader. The systems are deployed at NID District office, on mobile unit and as various sub-district as and offline system.

01/04/2003	30/07/2004	Company: MIMOS Smart Computing Sdn Bhd
		Project: Implementation of Training the School Teachers to handle and maintain the School IT Lab for the Ministry of Education Malaysia.
		Position: Assistant Project Manager
		Technical and management experience:
		A task includes planning, organizing, coordinating and implementation of School IT lab training for the School IT Lab supervisor and assistant supervisor. Other roles to supervise and coordinate with training vendor ensuring quality training are timely delivery
		Some of the experiences are listed below:
		• Coordinated effort with the state education officer nation wide on the training schedule to ensure training to complete within specified time.
		• Organized and scheduled the training of IT Lab Supervisor and Assistant Supervisors from more than 700 schools in West Malaysia within specific period of 3 months
		• Supervise and coordinate resources with Training vendor and ensure quality training and timely delivery
		• Coordinate with training centres for timely payment to Food and Beverages contractor.
		• Ensure successful training sign-off by the officer in the State Education Department concern.
		• Assumed the project manager role to continue delivery of about 250 schools handed over by the previous project team.
1/05/2002	31/8/2002	Company: Vantage Point Consulting Sdn Bhd
		Project: Implementation of SAP R/3 Personnel Admin Module for MIMOS Bhd, The R&D organization that functions as an advisor to the Malaysian Government on technologies, policies and strategies relating to technology development.
		Position: SAP Applicant Consultant
		Relevant technical and management experience:
		Assist senior consultant during the elaboration phase, to perform as follows:
		• Understanding the current business blueprint produced by the outgoing consultant.
		• Perform user interviews and discussion with users to comprehend the current business process.
		• Mapping current business process with the SAP R/3 applications to create up-to-date business blueprint for the Personnel Administration Module.

01/04/2001	30/04/2002	Company: Vantage Point Consulting Sdn Bhd
		Project: Implementation of SAP R/3 HR Modules for Alam Flora Sdn Bhd, provider of integrated solid waste management solutions in Malaysia.
		Position: SAP Applicant Consultant
		Assist senior consultant to implement the SAP R/3 HR Systems involving the Payroll and Personnel Administration modules. The project was to analyze the existing payroll and personnel administration system and enhance them according to the HR best practices to produce a new efficient system
		The experiences are as follows:
		• Understanding the current process by holding user interviews session and brainstorming.
		• Perform package training to the project team
		• Prepare business blue print, configuration management and application training.
		• Perform data conversions exercise
01/07/200	31/03/2001	Company: Vantage Point Consulting Sdn Bhd
		Project: Implementation of SAP R/3 Material Management Systems for Puncak Niaga Sdn Bhd, and infrastructure and utility company.
		Position: SAP Applicant Consultant
		Relevant technical and management experience:
		Assist senior consultant in the implementation of the material management system Modules includes material master, inventory management, purchasing, physical inventory and material requirement planning. A prime responsibility is to perform user documentation and user training for the company. Also involved in the system roll out for the companies.
01/12/1999	30/06/2000	Company: Vantage Point Consulting Sdn Bhd
		Project: Implementation of SAP R/3 Human Resources Modules for Johor Corporation, a state economic development corporation company.
		Relevant technical and management experience:
		Assist senior consultant to implement SAP R/3 Human Resource modules. Modules which includes Personnel Administration, Organizational Management, Payroll Administration, Personnel Development and Training and Event Management.
		The task includes to ensure good progress throughout the implementation within team and users. Also to ensure successful integration with SAP Financials system.
		Responsibilities also included consultant resource management, user requirement study, analysis, design, and data conversion.

01/01/1999	31/08/1999	Company: Vantage Point Consulting Sdn Bhd Project: Implementation of SAP R/3 Human Resources Modules for Subang Jaya Medical Centre, one of Malaysia's private hospitals providing an internationally accredited tertiary care medical centre serving the primary and tertiary health care needs of the region. Relevant technical and management experience: Responsible as a Team Member in the implementation of SAP R/3 Human Resource application module. Prime role is in the analysis, implementation, documentation and user training for Personnel Administration module, Recruitment, Training and Event Module and Personnel Development module. Primary tasks includes the following: • Perform user requirement study • Perform package customization and implementations • Prepare end user documentation and train the user
01/12/1997	30/07/1998	Company: Vantage Point Consulting Sdn Bhd Project: Implementation of Integrated IT System for Kuala Lumpur Airport Services Sdn Bhd (KLAS) an independent ground handler that provides a comprehensive range of services to various commercial airlines operating into and through Malaysian Airports. Relevant technical and management experience: Assist the Project Team Leader to implement the SAP R/3 Materials Management Systems. A task involves scoping, implementation study, conceptual design, configuration, prototyping, testing, training and post implementation support. Achievements/Responsibilities included: • Perform User Requirement study • Perform Package Customization and system implementations • Perform End user documentation and end user training
01/03/1994	30/04/1995	Company: HyperSis Sdn Bhd Project: Implementation of Total IT System for the Perbadanan Nasional Shipping Lines (PNSL), a second National shipping line carrying Malaysia exports overseas. Relevant technical and management experience: Reporting to Project Director, responsible to manage own team of application developers liaise with two other software vendors. Assist the application development team in identifying end user requirement and finalise the scope of the in-house system. Achievements/Responsibilities included: • To manage own project team to carry out initial study, design, develop, test and implement of PNSL's in-house systems. • To coordinate with Oracle (M) Sdn Bhd on the implementation of Oracle Financial System • To coordinate the implementation of Ramco System's - Materials Management System.

01/03/1994	30/04/1995	Company: HyperSis Sdn Bhd
		Project: Implementation of Total IT System for the Perbadanan Nasional Shipping Lines (PNSL), a second National shipping line carrying Malaysia exports overseas.
		Relevant technical and management experience:
		Please include Role Outline – brief 1-3 paragraph summary.
		Reporting to Project Director, responsible to manage own team of application developers liaise with two other software vendors. Assist the application development team in identifying end user requirement and finalise the scope of the in-house system.
		Achievements/Responsibilities included:
		Please list as bullet points.
		• To manage own project team to carry out initial study, design, develop, test and implement of PNSL's in-house systems.
		• To coordinate with Oracle (M) Sdn Bhd on the implementation of Oracle Financial System
		• To coordinate the implementation of Ramco System's - Materials Management System.

xiv. Candidate Summary

Name of Bidder HeiTech Padu Berhad

Position		Candidate	
Team Leader		ÿ Prime x Alternate	
Candidate information	Name of candidate Mohd Roslan bin Husin (Male)	Date of birth 10 June 1973	
	Professional qualifications Microsoft Certified Professional Degree in Computer Science, University of Technology Malaysia (UTM) Diploma in Computer Science, University of Technology Malaysia (UTM) Diploma in Science, University of Technology MARA (UiTM)		
Present employment	Name of Employer HeiTech Padu Bhd		
	Address of Employer HeiTech Village Persiaran Kewajipan, USJ 1, UEP Subang Jaya P.O. Box 3086, 47509 Subang Jaya Selangor, Malaysia		
	Telephone 603 80268888	Contact (manager / personnel officer) Ahmad Abdul Ghani Senior VP, Human Resource Division	
	Fax 60380234152	Telex	
	Job title of candidate Senior Systems Engineer	Years with present Employer 4 years	

Summarize professional experience over the last twenty years, in reverse chronological order. Indicate particular technical and managerial experience relevant to the project.

From	To	Company/Project/ Position/Relevant technical and management experience
March 2003	Present	**Company**: HeiTech Padu Berhad **Project** : Jabatan Imigresen Malaysia **Position** : Senior Systems Engineer **Relevant technical and management experience** : *Lead and Manage Technical Support Team* *Lead Technical Support in Systems Design, Development and Implementations for Immigration Systems* *Represent Technical Support Team on Meetings & Forums* *Consult Customer Support Engineer (CSE) and Customer Care Center (CCC) on Immigration Systems Problem Solving* *Consultant for Disaster Recovery Activity on Immigration Department Applications* *Monitor CCC Problem Logs* *Design and develop server side programming*
July 2000	March 2003	**Company**: Custommedia Sdn. Bhd. **Project** : Smart School Management Systems (SSMS) **Position** : Analyst Programmer **Relevant technical experience** : *Design and develop release 2 applications such as Central Server, Collaboration and Library Management.* *Design and develop Bestari Pop* *Design and develop Housekeeping* *Design & Develop release 4 application such as Human Resource and Central Server*
August 1997	March 1998	**Company**: University of Technology Malaysia **Project** : Development of Ship Simulator Tank Testing Work for Mechanical Engineering **Position** : Research Assistant **Relevant technical experience** : *Design ship wire frame using 3D studio Max for Ship Simulator Tank Testing Work for Mechanical Engineering Faculty* *Write program for Ship movement using World Tool Kit and Borland C++*

Dec 1996	June 1997	**Company**: University of Technology Malaysia
		Project : Development of Chemistry Courseware for Chemistry Faculty
		Position : Research Assistant
		Relevant technical experience :
		Develop chemistry multimedia courseware for Chemistry Faculty, UTM Skudai Johor.
Oct 1996	June 1995	**Company**: KM Systems (M) Sdn. Bhd.
		Project : USA and CANADA pipeline
		Position : Draughtsman
		Relevant technical experience :
		Design and draw pipelines using autoCAD for few states in USA and CANADA

xv.   Candidate Summary

Name of Bidder   HeiTech Padu Bhd

Position Team Leader		Candidate ÿ Prime x Alternate	
Candidate information	Name of candidate Roshan Chandrasiri	Date of birth 28th June 1974	
	Professional qualifications • **Diploma in Computer Systems Engineering (One Year – Full Time)** by Myown Computer Systems, Colombo (1993) • **Diploma in Computer Programming (8 Months)** by Tec Sri Lanka, Colombo (1993)		
Present employment	Name of Employer EPIC Lanka (Pvt) Ltd		
	Address of Employer EPIC Lanka (Pvt) Ltd 221/3, Dharmapala Mawatha, Colombo 07. 00700 Sri Lanka.		
	Telephone 94 11 2669151	Contact (manager / personnel officer) Krishan Jayawardena Senior VP - Operations	

	Fax 94 11 2669150	Telex
	Job title of candidate	Years with present Employer
	Software Engineer	4 Years 6 Months

Summarize professional experience over the last twenty years, in reverse chronological order. Indicate particular technical and managerial experience relevant to the project.

From	To	Company/Project/ Position/Relevant technical and management experience
2007	2007	Nations Trust Bank Ltd/ Interbank File Transfer System based on PKI Infrastructure/ Team Leader, Systems Designer
2006	2007	Department of Immigration and Emigration, Sri Lanka / PKI Implementation for Travel Document Printing System / Security Systems Designer
2005	2007	Sri Lanka Telecom/ SLT Cashiering Re-engineering & PKI Implementation Project/ Team Leader, Systems Designer
2003	2005	Sri Lanka Telecom, Colombo/ SLT Cashiering Project/ Team Leader
2001	2003	MediaSolv.com, USA/ bizOA.com (Groupware Collaboration & Messaging Product developed by the company)/ Senior Software Developer
2000	2000	WapOA.com (Pte) Ltd, Singapore/ wapOA.com (Groupware Collaboration & Massaging Product developed by the company) / Team Leader, Senior Developer
1998	2000	Media Solutions (Pvt) Ltd, Colombo, Sri Lanka/ MillenniumOffice, bizOA, MobileOA, wapOA (Groupware Collaboration & Messaging products developed by the company)/ Software Developer

xvi. Candidate Summary

Name of Bidder	HeiTech Padu Bhd

Position		Candidate	
Team Leader		ÿ Prime x Alternate	
Candidate information	Name of candidate Sachith Fernandopulle	Date of birth 15 October 1981	

	Professional qualifications
	   • Certificate IV in Information Technology
	   • Diploma in Information Technology
	   • Bachelor of Information Technology
	   • Diploma in Management		

Present employment	Name of Employer EPIC Lanka (Pvt) Ltd		
	Address of Employer EPIC Lanka (Pvt) Ltd 221/3, Dharmapala Mawatha, Colombo 07. 00700 Sri Lanka.		
	Telephone 94 11 2669151	Contact (manager / personnel officer) Krishan Jayawardena Senior VP - Operations	
	Fax 94 11 2669150	Telex	
	Job title of candidate Software Engineer	Years with present Employer 2 Years	

Summarize professional experience over the last twenty years, in reverse chronological order. Indicate particular technical and managerial experience relevant to the project.

From	To	Company/Project/ Position/Relevant technical and management experience
Nov 2006	Present	Epic Lanka/ Work Force Management System/ Team Leader A PDA based solution to manage and monitor the operations and performance of operational staff in a major telecommunication organization in Sri Lanka

Jan 2006	Oct 2007	Epic Lanka/ Security – Cashiering Solution/ Software Engineer Java related development
Sept 2005	Jan 2006	Epic Lanka/ Genesiis Software/ Hot Jobs/ Software Engineer A web based job management solution in Java
Feb 2005	Aug 2005	Epic Lanka/ Genesiis Software/ IWMI/ Software Engineer .NET related development
2004	2005	Epic Lanka/ Cashiering Solution/ Software Developer/ Visual Studio 6 related development

xvii.   Candidate Summary

Name of Bidder   HeiTech Padu Bhd

Position		Candidate	
Quality Assurance Specialist		x Prime ÿ Alternate	
Candidate information	Name of candidate : Yanti Salwani Che Saad	Date of birth : 18 Dec, 1971	
	Professional qualifications • BSc in Computer Science , Syracuse University, New York, USA • ITIL Foundation Certified • Authorized Standard CMMI Appraisal Method Process Improvement (SCAMPI) Assessment Team Member		
Present employment	Name of Employer HeiTech Padu Bhd		
	Address of Employer HeiTech Village Persiaran Kewajipan, USJ 1, UEP Subang Jaya P.O. Box 3086, 47509 Subang Jaya Selangor, Malaysia		
	Telephone 603 80268888	Contact (manager / personnel officer) Ahmad Abdul Ghani Senior VP, Human Resource Division	
	Fax 60380234152	Telex	
	Job title of candidate Lead Software Process Engineer	Years with present Employer : 4 years	

Summarize professional experience over the last twenty years, in reverse chronological order. Indicate particular technical and managerial experience relevant to the project.

From	To	Company/Project/ Position/Relevant technical and management experience

2007	Present	**HeiTech Padu Berhad**
		Management Experiences:
		1) Managed continuous Software Engineering Process Improvement towards CMMI Level 5 certification.
		2) Managed continuous IT Service Management Process Improvement tailoring to the ITIL quality model. Main process definition driver for Change Management, Configuration Management and Release Management processes.
		3) Coordinated and facilitated improvement in Requirement Gathering Technique using the Use Case approach
		Technical Experiences:
		1) Performed selection of Project Management Tools and Configuration Management Tools.

2005	2006	**HeiTech Padu Berhad**
		Management Experiences :
		1) Lead the organization for the CMMI Level 3 certification which achieved in Dec, 2006
		a. Setup the organizational Engineering Process Group which is responsible for the organizational process improvement initiatives and consisted of member from across the organization.
		b. Secured the cost for the Process Improvement Initiatives which are sponsored by Malaysian Development Corporation (MDec) as part of the Malaysian IT Industry Capability Development program and HeiTech Padu Berhad. To be entitled for the sponsorship by MDeC, there were some eligibility criteria that need to be met by HeiTech Padu Berhad
		c. Managed and coordinated the Standard CMMI Appraisal Method for Process Improvement (SCAMPI) Type A for the CMMI Level 3 certification.
		Technical Experiences :
		1) Defined organizational standard process for Project Management and Software Engineering related activities.
		Some in the list for Project Management related processes are :
		a. Project Planning processes
		b. Project Monitoring and Controlling processes
		c. Risk Management processes
		d. Product and Process Quality Assurance processes
		e. Measurement and Analysis processes
		f. Decision and Analysis Resolution processes
		Some in the list for Software Engineering related processes are :
		g. Requirement Management and Requirement Development processes
		h. Software Design and Analysis processes
		i. Software Testing (Validation) processes
		j. Software Configuration Management processes
		k. Software Deployment processes
		2) Conducted training and facilitated implementation of the process by the practitioner group
		3) Conducted continuous compliance assessment (quality assurance) for all projects undertaken by HeiTech Padu Berhad

July, 2004	Dec, 2004	HeiTech Padu Berhad
		Project – **M**inistry of International Trade and Industry (MITI) and **A**gencies **Tr**ade and **I**ndustry **I**nformation E**x**change (MATRIIX)
		Management Experiences :
		1) Managed the application testing activities. It includes formulation of Master Test Plan, Test Cases as well as measuring and reporting the Test Result.
		2) Acted as Project Management and Quality Assurance advisor to the project.
		Technical Experiences :
		1) Coordinated and prepared the Design Document for the application which were based on Object Oriented Design using UML notation
		2) Planned and performed performance test on the application using Rational Robot and a shareware testing tool.
Oct, 2003	June, 2004	HeiTech Padu Berhad
		Management Experiences :
		1) Started initializing and brainstorming the process improvement roadmap for the organization. The roadmap consisted of quality model based on CMMI, ITIL and IT Security Management (ISO27001)
		Technical Experiences :
		1) Provided technical support to project in-term of implementation of development tools from Rational – (as part of deliverables to customer). Some of the tools are :
		ü Rational Unified Process Awareness and training to customer
		ü Rational RequisitePro training and workshop to customer
		ü Rational ClearQuest and Rational ClearCase setup and implementation of Configuration Management to customer
		2) Conducted CMMI Awareness training to the organization.
2001	Oct, 2003	IBM & Rational Software
		Software Engineering Specialist
		Technical Experiences :
		Provided pre-sales support to Sales Manager for Malaysia. It included product demo and seminar presentation.
		Provided technical consultancy and training for Rational Product implementation for Malaysia's and Philippines's customers. Focused products are Rational ClearQuest (Change Management tool), Rational ClearCase and MultiSite (Configuration Management tool) and Rational RequisitePro (Requirement Management tool) and Rational Unified Process.

1998	2000	Maxis Communication Berhad
		Management Experiences :
		Defined and conducted training on the internal Software Development Process to all software development personnel.
		Acted as the Quality Control in releasing the telecommunication related software to Maxis production.
		Technical Experiences :
		Performed evaluation on the Change and Configuration Management tool for the application development organization
1994	1998	Motorola (Malaysia) Berhad
		Management Experiences :
		1) Acted as one of the leader in the System Administration Group
		2) Acted as Project Manager for the development of Computerized Job Certification System (An on-line certification (exam) systems for Kuala Lumpur Motorola production operators)
		3) Managed the deployment of Shop Floor Control (SFC) system (i.e. the first module in Computer Integrated Manufacturing (CIM) which handles the control of production material starting from the raw unit to product unit. This involves scheduling of implementation and transitioning the production personnel from manual to automated process.
		4) Participated and acted as Kuala Lumpur Motorola Software Steering Committee who led the organization in the CMM Level 2 and Level 3 Certification. This certification was among the first to be performed in Malaysia.
		Technical Experiences :
		1) Acted as system administrator for all UNIX based operating system production floor equipment. As system administrator, the activities performed involves :
		ü Develop, propose and implement reliable servers' architecture to support 24X7 Kuala Lumpur Motorola production floor.
		ü Develop, propose and implement backup solution for all UNIX systems in Kuala Lumpur Motorola
		ü Prepare disaster and recovery procedure for critical servers
		ü Managed the Y2K assessment and compliance activities
		ü Administer the IT security setup in the UNIX related systems.
		2) Performed roles as departmental network engineer in planning the network requirement and configuration for the department

xviii. Candidate Summary

Name of Bidder	HeiTech Padu Bhd

Position		Candidate	
Quality Assurance Specialist		ÿ Prime x Alternate	
Candidate information	Name of candidate Lenny Ruby Atai (Female)	Date of birth 1972	
	Tertiary qualifications • Master of Science (Computer Science-Real Time Software Engineering) from Centre for Advance Software Engineering (CASE), Universiti Teknologi Malaysia (UTM), 2003 • Bachelor Degree in Computer Science (Major in Computer System), Universiti Teknologi Malaysia (UTM), 1997 • Diploma in Computer Science, Universiti Teknologi Malaysia (UTM), 1995 Professional Training • SEI Introduction to Capability Maturity Model CMMI) v1.1, August 2006 • CMMI Appraisal Team Member Training, Dec 2006 • Measurement and Analysis, 2004 • Software Quality Assurance and Software Testing, Feb 2006 • MicroStrategy (Executive Information System Tool), Dec 2004 • Project Planning and Tracking Using Microsoft Project 2003, 2004 • BS 15000 Standard Awareness Training, June 2006 • Executive Overview of Six Sigma Training, Oct 2007		
Present employment	Name of Employer HeiTech Padu Bhd		
	Address of Employer HeiTech Village Persiaran Kewajipan, USJ 1, UEP Subang Jaya P.O. Box 3086, 47509 Subang Jaya Selangor, Malaysia		
	Telephone 603 80268888	Contact (manager / personnel officer) Ahmad Abdul Ghani Senior VP, Human Resource Division	
	Fax 60380234152	Telex	
	Job title of candidate Senior Software Process Engineer	Years with present Employer 4 Years	

Summarize professional experience over the last twenty years, in reverse chronological order. Indicate particular technical and managerial experience relevant to the project.

From	To	Company/Project/ Position/Relevant technical and management experience
Jan 2006	Present	HeiTech Padu Berhad/Process Consultancy Services/ Senior Software Process Engineer Technical and Management Experiences: • Responsible for organization software process improvement initiatives based on CMMI framework • Conducted awareness training on CMMI to application development projects team members • Conducted series of internal training on organization standard application development process and practices to all project team members which include Project Managers, Analysts, Software Developers, Tester and Deployment Team Members • Member of organization Engineering Process Group (EPG) • Part of CMMI Level 3, SCAMPI A Appraisal Team Member • Part of CMMI Level 3, SCAMPI C and SCAMPI B Appraisal Team Member • Part of organization's Quality Month Committee members (2006 & 2007) • Conducted knowledge sharing session on CMMI implementation during 2006 HeiTech Quality Month • Successfully assist HeiTech Padu to achieve CMMI Level 3 Maturity on December 2006

Dec 2004	Dec 2005	HeiTech Padu Berhad/ Executive Information System Project for Malaysia Pilgrimage Board (Tabung Haji)/ Business Analyst
		Technical and Management Experiences:
		• Perform customer's requirements analysis and design activities
		• Developed System Requirement and Design documentations and perform quality reviews
		• Developed Test Plan, Test Cases and Test Report
		• Perform system test
		• Perform review of System Requirement, Design, Test Plan, Test Cases and Test Report
		• Manage User Acceptance Test (UAT) with client
		• Conducted Executive Information System (Introduction to MicroStrategy) training to the management of Tabung Haji Human Resource Department.
		• Perform liaison with client (users) on requirements issue
		• Conducted Executive Information System (Introduction to MicroStrategy) training to the management of Tabung Haji Human Resource Department
		Technology Used:
		• MicroStrategy (EIS Tool)
		• MySQL
April 2005	Nov 2005	HeiTech Padu Berhad/ Ministry of Trade and Industry Malaysia / Business Analyst
		Technical and Management Experiences:
		• Prepared solution proposal mainly on the content of project management and application development process and practices in reply to Request for Proposal of the Ministry.
		• Collaborated with vendor and technology partner on the completion of the solution proposal
Feb 2004	March 2004	HeiTech Padu Berhad/ MAMPU (Government Portal Project)/ Business Analyst
		Technical and Management Experiences:
		• Involved in the preparation of solution proposal (Tender -Request for Proposal).
		• Liaised with vendor and technology partner (Microsoft Malaysia) on solution proposal
		• Successfully assist HeiTech in getting Government Portal project (Agency Linkup for JPN)

		Technical Expertise Summary: (Hardware/Operating Systems/Networks) • Windows Platform (Techniques/Methodologies/Tools) • Rational Unified Process,Rapid Development Process • International Standards Certification CMMI Framework, ISO Standards • Software Modelling Tools Unified Modeling Language • Databases MySQL, MS ACCESS • Languages Visual Basic, Visual C++ • Design Tools Rational ROSE • Development Tools Visio Studio, MicroStrategy • Office Suite Tools Microsoft Office, Lotus SmartSuite

xix.   Candidate Summary

Position : Team Leader of the Software Engineering		Candidate ☐☐☐☐☐ ☐ Prime Alternate.
Candidate information	**Name of candidate** Mr. Krishan Jayawardena	Date of birth 08.10.1966
	Professional qualifications : 1. B.Sc in Computer Science 2. Diploma in Electrical Technology 3. Certified Course in Novell Engineer (CNE4) 4. Certified coursed in Systems Engineer (MCSE) **Training attended** 1. Secure ID Card Design and ID Card Printing System Maintenance of ESP System and Data-strip	
Present employment	**Name of Employer :** Epic Lanka (Pvt) Ltd.,	
	Address of Employer : 221/3, Dharmapala Mawatha, Colombo 7, Sri Lanka.	
	Telephone : 0112 669151-5	**Contact (manager / personnel officer)** Mr. Manjula Thawalampitiya Sen. Vice President-Finance & Administration
	Fax : 0112 669150	~~**Telex**~~ **: Email :** sales@epiclanka.net
	Job title of candidate Senior Vice President - Operations	**Years with present Employer** 10 Years

Summarize professional experience over the last twenty years, in reverse chronological order. Indicate particular technical and managerial experience relevant to the project.

From	To	Company / Project / Position / Relevant technical and management experience
2008 onwards		Dept. of Immigration & Emigration / **Setting up of Centre for Disaster Recovery of Information** / Project Manager
2006 onwards		Dept. of Immigration & Emigration / **Decentralization Program of Printing of National Passport to Anuradhapura, Matara & Kandy** / Project Manager
2006 onwards		H S B C / **POS Banking-Financial and Banking Transaction Switch** / Project Manager
2006 onwards		Sri Lanka Telecom / **Mobile Workforce Management & Enterprise Resource Management Solution** / Team Leader
2006 onwards		ABC Credit Card Co. / **Private Label Credit Card Solution** / Project Manager
2005 onwards		Ceylinco PLC / **Multi Scheme, Multi Merchant Loyalty Solution** / Software Engineer
2004 onwards		Sri Lanka Telecom, Nations Trust Bank and Dept. of Immigration & Emigration / **Information Security Policy & Network Security Solution** / Software Engineer
2003 onwards		Dept. of Immigration & Emigration / **National Passport printing & personalization application solution** / Team Leader
2003 onwards		Sri Lanka Telecom / **Cash Collection and Cashiering Solution** / Team Leader
2001 onwards		Air Port Aviation & Sri Lanka Army / **Digitized Secure ID Card Solution** / Team Leader
1998 onwards		Peoples Bank / **Fully-fledged Smart Card based payment solution including Hardware and Networking** / Head of Quality Assurance
1998 onwards		All leading Banks / **Credit Card Acquiring Module** / Software Engineer
1998 onwards		All leading Banks / **EDC/POS Based Credit Card Acquiring Module** / Software Engineer

xx. **Candidate Summary**

Name of Bidder : HeiTech Padu Berhad

Position : Software Engineer	Candidate
	Prime ☐ Alternate.
Candidate information	**Name of candidate** Mr. Mohammed B. Hasaam	**Date of birth** 29.06.1981
	Professional qualifications : **5.** MSC in Information Technology **Training attended** 2. Verifone Training in Singapore	
Present employment	**Name of Employer :** Epic Lanka (Pvt) Ltd.,	
	Address of Employer : 221/3, Dharmapala Mawatha, Colombo 7, Sri Lanka.	
	Telephone : 0112 669151-5	**Contact (manager / personnel officer)** Mr. Manjula Thawalampitiya Sen. Vice President-Finance & Administration
	Fax : 0112 669150	~~**Telex**~~ **: Email :** sales@epiclanka.net
	Job title of candidate Software Engineer	**Years with present Employer** 2 years & 4 months

Summarize professional experience over the last twenty years, in reverse chronological order. Indicate particular technical and managerial experience relevant to the project.

From	To	Company / Project / Position / Relevant technical and management experience

2007 onwards		H S B C / **POS Banking-Financial and Banking Transaction Switch** / Software Engineer
2007 onwards		Sri Lanka Telecom / **Mobile Workforce Management & Enterprise Resource Management Solution** / Software Engineer
2007 onwards		ABC Credit Card Co. / **Private Label Credit Card Solution** / Software Engineer
2007 onwards		Sri Lanka Telecom, Nations Trust Bank and Dept. of Immigration & Emigration / **Information Security Policy & Network Security Solution** / Software Engineer
2006 onwards		Sri Lanka Telecom / **Cash Collection and Cashiering Solution** / Software Engineer
2006 onwards		All leading Banks / **Credit Card Acquiring Module** / Software Engineer
2006 onwards		All leading Banks / **EDC/POS Based Credit Card Acquiring Module** / Software Engineer

xxi. Candidate Summary

Name of Bidder   HeiTech Padu Bhd

Position		Candidate
		x Prime ÿ Alternate
Candidate information	Name of candidate Manjula Sampath Kumara Illangasekara	Date of birth 29-05-1983
	Professional qualifications 1. BCA-Bachelor of Computer Applications - Bangalore ,India 2. DNIIT(Professional Diploma in E –Technology Computing) 3. Java Standard Edition 5 training program	
Present employment	Name of Employer EPIC Lanka (Pvt) Ltd	
	Address of Employer EPIC Lanka (Pvt) Ltd 221/3, Dharmapala Mawatha, Colombo 07. 00700 Sri Lanka.	
	Telephone 94 11 2669151	Contact (manager / personnel officer) Krishan Jayawardena Senior VP - Operations
	Fax 94 11 2669150	Telex
	Job title of candidate Software Engineer	Years with present Employer 1 and ½ years

Summarize professional experience over the last twenty years, in reverse chronological order. Indicate particular technical and managerial experience relevant to the project.

From	To	Company/Project/ Position/Relevant technical and management experience
2006-11	Present	Epic Lanka/SLT Workforce mgt System/ Software Engineer/Developments
2006-09	2006-11	Epic Lanka/HSBC POS Banking administrative application/Software engineer/developments/
2006-07	2006-10	Epic Lanka/ABC Credit Card System/Software Engineer/Developments

xxii.   Candidate Summary

Name of Bidder : HeiTech Padu Berhad

Position : Software Enginner	Candidate □ Prime Alternate □
Candidate information	**Name of candidate** Ms. Upekkha Senevirathne	**Date of birth** 08.10.1983

Candidate information	**Professional qualifications** : 1. BSc Honors in Information Technology 2. Higher Diploma in Information Technology 3. Diploma in Information Technology

Present employment	**Name of Employer :** Epic Lanka (Pvt) Ltd.,
	Address of Employer : 221/3, Dharmapala Mawatha, Colombo 7, Sri Lanka.
	Telephone : 0112 669151-5	**Contact (manager / personnel officer)** Mr. Manjula Thawalampitiya Sen. Vice President-Finance & Administration
	Fax : 0112 669150	~~**Telex**~~ **: Email :** sales@epiclanka.net
	Job title of candidate Software Engineer	**Years with present Employer** 10 Years

Summarize professional experience over the last twenty years, in reverse chronological order. Indicate particular technical and managerial experience relevant to the project.

From	To	Company / Project / Position / Relevant technical and management experience
2007 onwards		H S B C / **POS Banking-Financial and Banking Transaction Switch** / Software Engineer
2007 onwards		Sri Lanka Telecom / **Mobile Workforce Management & Enterprise Resource Management Solution** / Software Engineer

xxiii.   Candidate Summary

Bidders must use separate sheet for each member in the team.

Name of Bidder : HeiTech Padu Berhad

Position : Software Enginner		Candidate
		☐☐☐☐ **Prime** X **Alternate**.
Candidate information	**Name of candidate** Ms. Upekkha Senevirathne	**Date of birth** 08.10.1983
	Professional qualifications : 1. BSc Honors in Information Technology 2. Higher Diploma in Information Technology 3. Diploma in Information Technology	
Present employment	**Name of Employer :** Epic Lanka (Pvt) Ltd.,	
	Address of Employer : 221/3, Dharmapala Mawatha, Colombo 7, Sri Lanka.	
	Telephone : 0112 669151-5	**Contact (manager / personnel officer)** Mr. Manjula Thawalampitiya Sen. Vice President-Finance & Administration
	Fax : 0112 669150	~~Telex~~ **: Email :** sales@epiclanka.net
	Job title of candidate Software Engineer	**Years with present Employer** 10 Years

Summarize professional experience over the last twenty years, in reverse chronological order. Indicate

particular technical and managerial experience relevant to the project.

From	To	Company / Project / Position / Relevant technical and management experience
2007 onwards		H S B C / **POS Banking-Financial and Banking Transaction Switch** / Software Engineer
2007 onwards		Sri Lanka Telecom / **Mobile Workforce Management & Enterprise Resource Management Solution** / Software Engineer

xxiv.   Candidate Summary

Bidders must use separate sheet for each member in the team.

Name of Bidder : HeiTech Padu Berhad

Position : Deputy Project Manager, OpSec Security, Inc. with responsibility for raw materials, customer service support, financial admin and related activities, Card Printing & Personalization System.	**Candidate** ☐ **Prime** X **Alternate**.	
Candidate information	**Name of candidate** Stephen Luft	**Date of birth** September 22, 1952
	Professional qualifications : Undergraduate Georgetown University -International Economics Graduate Indiana University -Finance and International Business Supply Chain Management Certificate - NYU	
Present employment	**Name of Employer:** OpSec Security, Inc.	
	Address of Employer: 1857 Colonial Village Lane	
	Telephone : 717-293-4110	**Contact (manager / personnel officer)** Ricardo Bambach, VP Global Sales
	Fax : 717-293-4117	~~**Telex**~~ **: Email :** sluft@opsecsecurity.com
	Job title of candidate Director Customer Solutions	**Years with present Employer** 11 years

Summarize professional experience over the last twenty years, in reverse chronological order. Indicate particular technical and managerial experience relevant to the project.

From	To	Company / Project / Position / Relevant technical and management experience
1997	2003	Advantage Technologies/ OpSec Vice President of Operations and Administration
2003	2006	OpSec -Director of Supply Chain Management
2007		OpSec Director of Customer Solutions

xxv.   Candidate Summary

Bidders must use separate sheet for each member in the team.

Name of Bidder : HeiTech Padu Berhad

Position : Deputy Project Manager, OpSec Security, Inc. with responsibility for business planning and implementation, contract managemen t for Card Printing & Personalization System		**Candidate** ☐ **Prime** X ☐ **Alternate**. X – Consortium Partner
Candidate information	**Name of candidate** Robert A. White	**Date of birth** 17 April 1943
	Professional qualifications : • 12 years experience in product authentication, anti-counterfeiting industry with OpSec Security, Inc. for protection of NID Cards, passport, currencies, tax stamps and other government documents of value • 25 years business planning and strategic planning experience in four Fortune 500 Companies in the US and Europe • 15 years project management and implementation experience with companies in the USA, Europe, Saudi Arabia, India and Latin America • Masters of Business Administration (MBA) Emory University - 1966 • BS Industrial Management/Industrial Engineering - 1965	
Present employment	**Name of Employer:** OpSec Security, Inc.	
	Address of Employer: 21132 Old York Road, P.O. Box 700, Parkton, MD 21120-0700 U.S.A.	
	Telephone : 410-357-4491	**Contact (manager / personnel officer)** Indra Paul, President – OpSec ID Solutions
	Fax : 410-357-4485	~~**Telex**~~ **: Email :** rwhite@opsecsecurity.com
	Job title of candidate Vice President, Business Planning & Administration	**Years with present Employer** 12 years

Summarize professional experience over the last twenty years, in reverse chronological order. Indicate particular technical and managerial experience relevant to the project.

From	To	Company / Project / Position / Relevant technical and management experience

Nov 1996	Present	OpSec Security, Inc. (Positions included VP Business Planning & Admin, General Manager – OpSec UK Operations and Holographic Origination Lab, VP Finance, OpSec Corporate Hqs in Denver, Colorado, USA.
1995	1996	US Department of Commerce, Denver, CO, USA
1993	1995	ESL Lighting, Owner/Operator, energy efficient lighting company
1989	1992	K Corporation, Antigo, WI, Chief Operating Officer
1986	1988	Neway Division, Lear Seigler Corp, VP Sales & Marketing
1980	1986	Clarke Floor Equipment, VP & General Manager, International Operations
1977	1980	Allied Tube & Conduit Corporation, VP International Business

xxvi.   Candidate Summary

Bidders must use separate sheet for each member in the team.

Name of Bidder : HeiTech Padu Berhad

Position :	**Candidate** ☐ **Prime** ☐ **Alternate**.	
Candidate information	**Name of candidate** Ricardo Bambach	**Date of birth** 16 March 1965
	Professional qualifications : Sales & Sales Management (MBA) Business Development Government Marketing Global Sales, focused in America and Asia Regions	
Present employment	**Name of Employer:** OpSec Security Inc.	
	Address of Employer: 21132 Old York Road, PO Box 700 Parkton, Maryland 21120-0700 USA	
	Telephone : 410 357 4491	**Contact (manager / personnel officer)** Indra Paul, President OpSec ID Solutions
	Fax : 410 357 4485	**Email :** rbambach@opsecsecurity.com
	Job title of candidate VP Global Sales	**Years with present Employer** 6

Summarize professional experience over the last twenty years, in reverse chronological order. Indicate particular technical and managerial experience relevant to the project.

From	To	Company / Project / Position / Relevant technical and management experience
1991	2000	3M Corporation – Business Development Manager, Latin America & Africa
2000	2002	Unisys Corporation – Portfolio Director, ID Solutions Latin America
2002	2008	Opsec Security Inc. – Vice President, Global Sales ID & Government Solutions

xxvii.   Candidate Summary

Name of Bidder : HeiTech Padu Berhad

Position :	Candidate ☐☐☐☐Prime ☐ Alternate.
Candidate information	**Name of candidate** NG Meng Hueh Ilini	**Date of birth** 22 July 1973
	Professional qualifications : Sales, Marketing, Finance and Business Operations experience Experienced in pharmaceutical, testing and measurement & security markets Focused in Asia Pacific region Professional Diploma in Training and Development Bachelor of Science, National University of Singapore	
Present employment	**Name of Employer:** OpSec Security, Inc. (Asia Pacific Rep Office)	
	Address of Employer: 10 Ubi Crescent Ubi Techpark #04-08 Singapore 408564	
	Telephone : +65 67446322	**Contact (manager / personnel officer)** jseah@opsecasia.com
	Fax : +65 67446355	**Email :** ing@opsecasia.com
	Job title of candidate Finance & Operations Director	**Years with present Employer** 5

Summarize professional experience over the last twenty years, in reverse chronological order. Indicate

particular technical and managerial experience relevant to the project.

From	To	Company / Project / Position / Relevant technical and management experience
1997	2000	Perkin Elmer Asia- Sales Engineer
2000	2002	DKSH- Product Manager
2002	2008	OpSec Security, Inc. (Asia Pacific Rep Office), Finance & Operations Director

xxviii.   Candidate Summary

Name of Bidder : HeiTech Padu Berhad

Position : Software Engineer	**Candidate**
	☐☐☐☐Prime ☐ **Alternate**.

Candidate information	**Name of candidate** Mr. Sachith Fernandopulle	**Date of birth** 15.10.1981
	Professional qualifications : 1. Bachelor of Information Technology 2. Diploma in Business Management **Training attended** 3. Training in Quality Controlling -NIBM	
Present employment	**Name of Employer :** Epic Lanka (Pvt) Ltd.,	
	Address of Employer : 221/3, Dharmapala Mawatha, Colombo 7, Sri Lanka.	
	Telephone : 0112 669151-5	**Contact (manager / personnel officer)** Mr. Manjula Thawalampitiya Sen. Vice President-Finance & Administration
	Fax : 0112 669150	~~**Telex**~~ : **Email :** sales@epiclanka.net
	Job title of candidate Asst.Vice President-Operations	**Years with present Employer** 2 ½ years

Summarize professional experience over the last twenty years, in reverse chronological order. Indicate

particular technical and managerial experience relevant to the project.

From	To	Company / Project / Position / Relevant technical and management experience
2008 onwards		Dept. of Immigration & Emigration / **Setting up of Centre for Disaster Recovery of Information** / Software Engineer
2006 onwards		Dept. of Immigration & Emigration / **Decentralization Program of Printing of National Passport to Anuradhapura, Matara & Kandy** / Software Engineer
2006 onwards		H S B C / **POS Banking-Financial and Banking Transaction Switch** / Team Leader
2006 onwards		Sri Lanka Telecom / **Mobile Workforce Management & Enterprise Resource Management Solution** / Software Engineer
2006 onwards		ABC Credit Card Co. / **Private Label Credit Card Solution** / Quality Assurance
2006 onwards		All leading Banks / **Credit Card Acquiring Module** / Software Engineer
2005 onwards		All leading Banks / **EDC/POS Based Credit Card Acquiring Module** / Software Engineer

xxix.   Candidate Summary

Name of Bidder : HeiTech Padu Berhad

Position : Deputy Project Manager, OpSec Security, Inc. with responsibility for product specifications, interactive software and implementation systems for Card Printing & Personalization System	**Candidate** ☐**Prime** ☐**Alternate**. X – Consortium Partner	
Candidate information	**Name of candidate** William C. Hein III	**Date of birth** 14 July 1955
	Professional qualifications : Project Management Professional (PMI certified) Program/Product Management (25+ years) Software/Data Systems Architect Aerospace Engineer Systems Engineering (data & communications) Process Engineer (Identification & Authentication Systems) Computer System/Network Administrator	
Present employment	**Name of Employer:** OpSec Security Inc.	
	Address of Employer: 21132 Old York Road, PO Box 700 Parkton, Maryland 21120-0700 USA	
	Telephone : 410 357 4491	**Contact (manager / personnel officer)** Indra Paul, President OpSec ID Solutions
	Fax : 410 357 4485	~~**Telex**~~ **: Email :** whein@opsecsecurity.com
	Job title of candidate VP, Product Management	**Years with present Employer** 1

Summarize professional experience over the last twenty years, in reverse chronological order. Indicate particular technical and managerial experience relevant to the project.

From	To	Company / Project / Position / Relevant technical and management experience
2003	2007	Lockheed Martin/Engineering Process Improvement Center/Principal Engineer
1999	2003	Digimarc/ID Systems/Director, Process Engineering
1996	1999	Prevue Networks/Data Collection/Process Engineer
1995	1996	TV Guide OnScreen/Data Services/Director
1992	1995	TV Guide/Editorial Systems/ Technical Manager
1985	1992	General Electric/Space Systems/Technical Manager

xxx.   CandidateSummary

Name of Bidder : HeiTech Padu Berhad

Position : Software Engineer	**Candidate** ☐ **Prime** **Alternate**.	
Candidate information	**Name of candidate** Mr. Bernard Sethunga	**Date of birth** 22.10.1982
	Professional qualifications : 1. MSC in Information Technology **Trainings Attended** 1. Certified Ethical Hacker	
Present employment	**Name of Employer :** Epic Lanka (Pvt) Ltd.,	
	Address of Employer : 221/3, Dharmapala Mawatha, Colombo 7, Sri Lanka.	
	Telephone : 0112 669151-5	**Contact (manager / personnel officer)** Mr. Manjula Thawalampitiya Sen. Vice President-Finance & Administration
	Fax : 0112 669150	~~**Telex**~~ **: Email :** sales@epiclanka.net
	Job title of candidate Software Engineer	**Years with present Employer** 2 years & 3 months

Summarize professional experience over the last twenty years, in reverse chronological order. Indicate particular technical and managerial experience relevant to the project.

From	To	Company / Project / Position / Relevant technical and management experience

2007 onwards		H S B C / **POS Banking-Financial and Banking Transaction Switch** / Software Engineer
2007 onwards		Sri Lanka Telecom / **Mobile Workforce Management & Enterprise Resource Management Solution** / Software Engineer
2006 onwards		ABC Credit Card Co. / **Private Label Credit Card Solution** / Software Engineer
2006 onwards		Sri Lanka Telecom, Nations Trust Bank and Dept. of Immigration & Emigration / **Information Security Policy & Network Security Solution** / Software Engineer
2006 onwards		Sri Lanka Telecom / **Cash Collection and Cashiering Solution** / Software Engineer

xxxi.   Candidate Summary

Bidders must use separate sheet for each member in the team.

Name of Bidder : HeiTech Padu Berhad

Position : Software Engineer		**Candidate**	
		☐ **Prime** ☐**Alternate**.	
Candidate information	**Name of candidate** Mr. Amila Perera	**Date of birth** 09.04.1982	
	Professional qualifications : **6.** BSc in Computer Science **Training attended** 4. JAVA Training		
Present employment	**Name of Employer :** Epic Lanka (Pvt) Ltd.,		
	Address of Employer : 221/3, Dharmapala Mawatha, Colombo 7, Sri Lanka.		
	Telephone : 0112 669151-5	**Contact (manager / personnel officer)**	

		Mr. Manjula Thawalampitiya Sen. Vice President-Finance & Administration
	Fax : 0112 669150	~~Telex~~ **: Email :** sales@epiclanka.net
	Job title of candidate Software Engineer	**Years with present Employer** 2 Years

Summarize professional experience over the last twenty years, in reverse chronological order. Indicate particular technical and managerial experience relevant to the project.

From	To	Company / Project / Position / Relevant technical and management experience
2007 onwards		H S B C / **POS Banking-Financial and Banking Transaction Switch** / Software Engineer
2007 onwards		Sri Lanka Telecom / **Mobile Workforce Management & Enterprise Resource Management Solution** / Software Engineer
2006 onwards		ABC Credit Card Co. / **Private Label Credit Card Solution** / Software Engineer
2006 onwards		Sri Lanka Telecom / **Cash Collection and Cashiering Solution** / Software Engineer
2006 onwards		All leading Banks / **Credit Card Acquiring Module** / Software Engineer

General Information Form

All individual firms and each partner of a Joint Venture / Consortium that are bidding must complete the information in this form. Nationality information should be provided for all owners or Bidders that are partnerships or individually owned firms.

Where the Bidder proposes to use named Subcontractors for highly specialized components of the Information System, the following information should also be supplied for the Subcontractor(s). Joint Venture / Consortiums must also fill out Form 3.5.2a.

1.	Name of firm **HEITECH PADU BERHAD**	
2.	Head office address **LEVEL 15, MENARA HEITECH VILLAGE, PERSIARAN KEWAJIPAN, USJ 1, 47600 SUBANG JAYA, SELANGOR, MALAYSIA**	
3.	Telephone **+603 8601 3000**	Contact **: DZULKIFLI ABD LATIF**
4.	Fax **+603 8023 4152**	Telex **-**
5.	Place of incorporation / registration : **KUALA LUMPUR, MALAYSIA**	Year of incorporation / registration : **5th AUGUST 1994**

Nationality of owners[1]	
Name **HEITECH PADU BERHAD IS A PUBLIC LISTED COMPANY ON THE KUALA LUMPUR STOCK EXCHANGE. NAMES SHOWN ARE THE BOARD OF DIRECTORS WITH DIRECT SHAREHOLDING**	Nationality
1. **DATO' MOHD HILMEY MOHD TAIB**	**MALAYSIAN**
2. **TAN SRI DATO SRI MOHD ZUKI KAMALUDIN**	**MALAYSIAN**
3. **HAJI SAFIEE HAJI MOHAMMAD**	**MALAYSIAN**
4. **SYED AGIL SYED SALIM**	**MALAYSIAN**
[1]/ To be completed by all owners of partnerships or individually owned firms.	

General Information Form

All individual firms and each partner of a Joint Venture / Consortium that are bidding must complete the information in this form. Nationality information should be provided for all owners or Bidders that are partnerships or individually owned firms.

Where the Bidder proposes to use named Subcontractors for highly specialized components of the Information System, the following information should also be supplied for the Subcontractor(s). Joint Venture / Consortiums must also fill out Form 3.5.2a.

1.	Name of firm **Epic Lanka (Pvt.) Ltd.**		
2.	Head office address **No. 221/3, Dharmapala Mawatha, Colombo 07, Sri Lanka.**		
3.	Telephone **0094 112 669151-5**	Contact **: Nayana D.P. Dehigama**	
4.	Fax **0094 112 669150**	Telex **(Email) nayana@epiclanka.net**	
5.	Place of incorporation / registration: **Colombo, Sri Lanka.**	Year of incorporation / registration : **1998**	

Nationality of owners[1]	
Name	Nationality
1. **Nayana D. P. Dehigama** **(Chairman / Managing Director)**	**Sri Lankan**
2. **A.C.A. Mudalige** **(Director / General Manager)**	**Sri Lankan**
3.	
4.	
5.	
[1]/ To be completed by all owners of partnerships or individually owned firms.	

General Information Form

All individual firms and each partner of a Joint Venture / Consortium that are bidding must complete the information in this form. Nationality information should be provided for all owners or Bidders that are partnerships or individually owned firms.

Where the Bidder proposes to use named Subcontractors for highly specialized components of the Information System, the following information should also be supplied for the Subcontractor(s). Joint Venture / Consortiums must also fill out Form 3.5.2a.

1.	Name of firm **OpSec Security, Inc.**	
2.	Head office address 21132 Old York Road, P.O. Box 700, Parkton, MD 21120-0700, USA	
3.	Telephone (410) 357-4491	Contact : Robert A. White
4.	Fax (410) 357-4485	Telex N/A
5.	Place of incorporation / registration : Colorado, USA	Year of incorporation / registration : 1993

Nationality of owners[1]	
Name	Nationality
1. Not applicable. Firm is a publically listed firm (London AIM: OSG) on the London Stock Exchange	
2.	
3.	
[1] To be completed by all owners of partnerships or individually owned firms.	

Joint Venture / Consortium Summary

Names of all partners of a ~~Joint Venture~~ / Consortium
1. Partner in charge   **HEITECH PADU BERHAD**
2. Partner **EPIC LANKA (PVT) LTD**
3. Partner **OPSEC SECURITY INC.**
4. Partner **-**
5. Partner **-**
6. etc.

Total value of annual construction turnover, in terms of Information System billed to clients, in LKR equivalent, converted at the rate of exchange at the end of the period reported:

Annual turnover data (applicable activities only; LKR equivalent) '000						
Partner	Form 2 page no.	Year 1 2007	Year 2 2006	Year 3 2005	Year 4 2004	Year 5 2003
1. Partner in charge HEITECH		14,417,088	11,393,155	9,962,898	10,621,800	7,755,075
2. Partner EPIC LANKA		244,970	175,782	93,376	72,195	55,538
3. Partner OPSEC		3,974,292	3,080,268	2,542,968	2,715,336	2,582,172
4. Partner						

5. Partner					
6. Etc.					
Totals					

General Information Systems Experience Record

Name of Bidder or partner of a ~~Joint Venture~~ / Consortium: **HEITECH PADU BERHAD**

All individual firms and all partners of a Joint Venture / Consortium must complete the information in this form with regard to the management of Information Systems contracts generally. The information supplied should be the annual turnover of the Bidder (or each member of a Joint Venture / Consortium), in terms of the amounts billed to clients for each year for work in progress or completed, converted to U.S. dollars at the rate of exchange at the end of the period reported. The annual periods should be calendar years, with partial accounting for the year up to the date of submission of applications

A brief note on each contract should be appended, describing the nature of the Information System, duration and amount of contract, managerial arrangements, purchaser, and other relevant details.

Use a separate sheet for each partner of a Joint Venture / Consortium.

Bidders should not enclose testimonials, certificates, and publicity material with their applications; they will not be taken into account in the evaluation of qualifications.

Annual turnover data (applicable activities related activities only)		
Year[1]	Turnover	US$ equivalent
1. 2007	LKR 14,417,088,000.00	137,349,000.00
2. 2006	LKR 10,721,184,000.00	99,270,000.00
3. 2005	LKR 9,469,344,000.00	87,679,000.00
4. 2004	LKR 9,979,872,000.00	92,406,000.00
5. 2003	LKR 7,259,616,000.00	67,219,000.00
[1] Commencing with the partial year up to the date of submission of Bids		

General Information Systems Experience Record

Name of Bidder or partner of a ~~Joint Venture~~ / Consortium: **Epic Lanka (Pvt.) Ltd.**

All individual firms and all partners of a Joint Venture / Consortium must complete the information in this form with regard to the management of Information Systems contracts generally. The information supplied should be the annual turnover of the Bidder (or each member of a Joint Venture / Consortium), in terms of the amounts billed to clients for each year for work in progress or completed, converted to U.S. dollars at the rate of exchange at the end of the period reported. The annual periods should be calendar years, with partial accounting for the year up to the date of submission of applications

A brief note on each contract should be appended, describing the nature of the Information System, duration and amount of contract, managerial arrangements, purchaser, and other relevant details.

Use a separate sheet for each partner of a Joint Venture / Consortium.

Bidders should not enclose testimonials, certificates, and publicity material with their applications; they will not be taken into account in the evaluation of qualifications.

Annual turnover data (applicable activities related activities only) '000		
Year[1]	Turnover **(LKR)**	US$ equivalent
1. **Year 2007**	244,970	2,274
2. **Year 2006**	175,782	1,608
3. **Year 2005**	93,376	909
4. **Year 2004**	72,195	726
5. **Year 2003**	55,538	570
[1] Commencing with the partial year up to the date of submission of Bids		

General Information Systems Experience Record

Name of Bidder or partner of a ~~Joint Venture~~ / Consortium   **OpSec Security, Inc.**

All individual firms and all partners of a Joint Venture / Consortium must complete the information in this form with regard to the management of Information Systems contracts generally. The information supplied should be the annual turnover of the Bidder (or each member of a Joint Venture / Consortium), in terms of the amounts billed to clients for each year for work in progress or completed, converted to U.S. dollars at the rate of exchange at the end of the period reported. The annual periods should be calendar years, with partial accounting for the year up to the date of submission of applications

A brief note on each contract should be appended, describing the nature of the Information System, duration and amount of contract, managerial arrangements, purchaser, and other relevant details.

Use a separate sheet for each partner of a Joint Venture / Consortium.

Bidders should not enclose testimonials, certificates, and publicity material with their applications; they will not be taken into account in the evaluation of qualifications.

Annual turnover data (applicable activities related activities only) *Turnover figures relate to OpSec ID and High Security business. *		
Year[1]	Turnover	US$ equivalent
1. 2007	£20,444,000	$36,799,000
2. 2006	£15,845,000	$28,521,000
3. 2005	£13,081,000	$23,546,000
4. 2004	£13,968,000	$25,142,000
5. 2003	£13,283,000	$23,909,000
[1] Commencing with the partial year up to the date of submission of Bids		

   *Note: Turnover figures by year are OpSec pound sterling figures converted to US
     dollars at an average exchange rate of 1.8.

Particular Information Systems Experience Record

Name of Bidder or partner of a ~~Joint Venture~~ / Consortium

On separate pages, using the format of Form given below, the Bidder is requested to list contracts of a similar nature, complexity, and requiring similar information technology and methodologies to the contract or contracts for which these Bidding Documents are issued, and which the Bidder has undertaken during the period, and of the number. Each partner of a Joint Venture / Consortium should separately provide details of its own relevant contracts. The contract value should be based on the payment currencies of the contracts converted into U.S. dollars, at the date of substantial completion, or for ongoing contracts at the time of award.

Name of Bidder or partner of a ~~Joint Venture~~ / Consortium

HEITECH PADU BERHAD

Use a separate sheet for each contract.

1.	Number of contract	**HTP/01**
	Name of contract - **Maintenance for One year Service of the Main Business System for National Registration Department (NRD), Ministry of Home Affairs**	
	Country - Government of Malaysia	
2.	Name of Purchaser – National Registration Department, Ministry of Home Affairs	
3.	Purchaser address - Headquarter, National Registration Department, Level 4, Block 2G5, Presint 2, Federal Government Administration Center, 62100 Federal Territory Putrajaya, Malaysia. Phone: 603-88807000 / 88807013, Fax: 603- 88807623	

4.	Nature of Information Systems and special features relevant to the contract for which the Bidding Documents are issued. The project objective is to maintain the workability of the online Population Registration System (SIREN) at 205 National Registration offices throughout Malaysia with the capability to share the information with other government ministries and agencies, as well as private sectors. 1. Maintenance services on the SIREN system business and operations that covers 205 NRD offices nationwide. 2. NRD link up with other government agencies i.e. Immigration Malaysia, Election Center 3. Maintenance on IT infrastructure such as Wide Area Network connectivity and Data Center Services for all NRD's offices. 4. Training and transfer of knowledge and technology to NRD.
5.	Contract role (check one) ÿ Prime Supplier ÿ Management Contractor ÿ Subcontractor ÿ Partner in a Joint Venture
6.	Amount of the total contract/subcontract/partner share (in specified currencies at completion, or at date of award for current contracts) Currency MYR Currency Currency $ 96,466,500
7.	Equivalent amount US$ Total contract: $ 29,232,272; Subcontract: $_____; Partner share: $_____;
8.	Date of award/completion – 1st July 2007 / 30th June 2008
9.	Contract was completed _NA__ months ahead/behind original schedule (if behind, provide explanation).
10.	Contract was completed US$ ___NA_____ equivalent under/over original contract amount (if over, provide explanation).
11.	Special contractual/technical requirements. *Not Applicable*

12.	Indicate the approximate percent of total contract value (and US$ amount) of Information System undertaken by subcontract, if any, and the nature of such Information System. *Not Applicable*

Note : NA – Not Applicable

1.	Number of contract	**HTP/02**
	Name of contract - **Collection System for Revenue and Deposit for Registrar Office of Federal Court and Case Management System for Legal Aid Bureau.**	
	Country – Government of Malaysia	
2.	Name of Purchaser – Legal Affairs Department, Prime Minister Department	
3.	Purchaser address- Legal Affairs Department, Prime Minister Department, Level 4-7, Legal Affairs Building, Precint 3, Federal Government Administration Center, 62692 Federal Territory Putrajaya, Tel: 603-8885 1000, Fax: 603-8885 1048/1051	
4.	Nature of Information Systems and special features relevant to the contract for which the Bidding Documents are issued 1. To handle the collection system in regards to court cases which include management and administration services. 2. Case Management System has been in development process and purposely to manage and monitor the status of court cases handled by Legal Aid Bureau.	
5.	Contract role (check one) ÿPrime Supplier ÿ Management Contractor ÿ Subcontractor ÿ Partner in a Joint Venture	
6.	Amount of the total contract/subcontract/partner share (in specified currencies at completion, or at date of award for current contracts) Currency MYR Currency Currency $ 4,324,760.00	
7.	Equivalent amount US$ Total contract: $ 1,310,533.33 ; Subcontract: $_____; Partner share: $_____;	

8.	Date of award/completion – 30th July 2007 / 30th June 2008
9.	Contract was completed __NA___ months ahead/behind original schedule (if behind, provide explanation).
10.	Contract was completed US$ __NA_____ equivalent under/over original contract amount (if over, provide explanation).
11.	Special contractual/technical requirements. *Not Applicable*
12.	Indicate the approximate percent of total contract value (and US$ amount) of Information System undertaken by subcontract, if any, and the nature of such Information System. *Not Applicable*

Note : NA – Not Applicable

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1.	Number of contract	**HTP/03**
	Name of contract - **Design, Build, Supply, Installation, Commissioning & Maintenance of the Tactical Operational Flight Trainer (TOFT) inclusive of its infrastructure and computer based trainer (CBT) to the Government of Malaysia**	
	Country – Government of Malaysia	
2.	Name of Purchaser - Royal Malaysian Air Force (RMAF), Ministry of Defense (MINDEF)	
3.	Purchaser address - 19th Floor, SU-30MKM In-Country Project Management Team, Defense Tower, Street of Padang Tembak, Kuala Lumpur, Tel : 603-21411133, Website: www.mod.gov.my	

4.	Nature of Information Systems and special features relevant to the contract for which the Bidding Documents are issued.
	High fidelity simulation training system to be used by pilots and technicians to familiarize with the aircraft. This will reduce the usage of training on actual aircraft, translated into reduction of operational cost and maintenance usage to the government.
	1. Development of simulation system for SU-30MKM
	2. Construction of building and infrastructure to house the TOFT system at Gong Kedak, Terengganu, Malaysia
	3. Development of CBT courseware and contents
	4. Maintenance and support of the TOFT and CBT system for 10 years
	5. Mid-life upgrade for CCOTS/COTS hardware and software
	6. Procurement of Commercial-Consumer-Off-The-Shelf (CCOTS) hardware and software
	7. Procurement of Consumer-Off-The-Shelf (COTS) hardware and software
5.	Contract role (check one)
	ÿ Prime Supplier ÿ Management Contractor ÿ Subcontractor ÿ Partner in a Joint Venture
6.	Amount of the total contract/subcontract/partner share (in specified currencies at completion, or at date of award for current contracts)
	Currency MYR Currency Currency
	$ 258,000,000
7.	Equivalent amount US$
	Total contract: $78,181,818; Subcontract: $_____; Partner share: $_____;
8.	Date of award/completion – 01st July 2006 / 30th June 2019 (156 months)
9.	Contract was completed _NA__ months ahead/behind original schedule (if behind, provide explanation).
10.	Contract was completed US$ _NA_____ equivalent under/over original contract amount (if over, provide explanation).
11.	Special contractual/technical requirements. *Not Applicable*

12.	Indicate the approximate percent of total contract value (and US$ amount) of Information System undertaken by subcontract, if any, and the nature of such Information System. *Not Applicable*

Note : NA – Not Applicable

1.	Number of contract	**HTP/04**
	Name of contract - **The system development of the Indonesian KTP (Kartu Tanda Penduduk) Online System (Indonesian Citizen Identity Card System) which includes the citizens' registration system and the production of ID cards.** **The project is on BOT (build, operate and transfer) model for a period of 20 years with the local government covering from acquiring of hardware, software, site infrastructure, system implementation, maintenance and support services.**	
	Country – Republic of Indonesia.	
2.	Name of Purchaser - the Government of Kabupaten Minahasa, North Sulawesi,	
3.	Purchaser address – District Administration of MINAHASA, Department of Population and Public Civil, Street of Maesa, Sasaran, Tondano 95616, North Sulawesi, Indonesia	

4.	Nature of Information Systems and special features relevant to the contract for which the Bidding Documents are issued 1. Modernization of KTP registration office to suit the business operation. 2. Supplying of ICT equipments i.e hardware and software and the licenses for host and customer offices. 3. Supplying of ICT equipments for mobile operations at remote locations i.e hardware and software and the licenses. 4. Setting up IT infrastructure for all the KTP Registration offices including LAN and WAN facilities. 5. Supply and setting up of Automated Fingerprint Identification System (AFIS). 6. Setting up of a Host system while providing the necessary infrastructure with related IT equipments. 7. Supply of ID cards and the Card Printing (personalisation) facilities. 8. Provide First and Second Level support services. 9. Provide training to the Government officers in the manning of the systems
5.	Contract role (check one) ÿ Prime Supplier ÿ Management Contractor ÿ Subcontractor ÿ Partner in a Joint Venture
6.	Amount of the total contract/subcontract/partner share (in specified currencies at completion, or at date of award for current contracts) Currency MYR Currency Currency $ 2,600,000
7.	Equivalent amount US$ Total contract: $ 778,443 ; Subcontract: $_____; Partner share: $_____;
8.	Date of award/completion – 06th July 2004 / 05th July 2024 (20 years)
9.	Contract was completed __NA__ months ahead/behind original schedule (if behind, provide explanation).

10.	Contract was completed US$ __NA_____ equivalent under/over original contract amount (if over, provide explanation).
11.	Special contractual/technical requirements. *Not Applicable*
12.	Indicate the approximate percent of total contract value (and US$ amount) of Information System undertaken by subcontract, if any, and the nature of such Information System. *Not Applicable*

Note : NA – Not Applicable

1.	Number of contract	**HTP/05**
	Name of contract - **Improvement of Main System for Pilgrims Fund Board**	
	Country – Government of Malaysia	
2.	Name of Purchaser – Pilgrims Fund Board (Lembaga Tabung Haji)	
3.	Purchaser address - Lembaga Tabung Haji, 201 Street of Tun Razak, Kuala Lumpur, Malaysia. Tel : (603) 2054 2000 / 2054 2233 / 2054 2400, Faks : (603) 2161 4450 / 2161 6484 / 2163 2308 / 2164 0436, Website: www.tabunghaji.gov.my	

4.	Nature of Information Systems and special features relevant to the contract for which the Bidding Documents are issued
	Lembaga Tabung Haji (LTH) has embarked on this project to enhance the support of its business operation. The system will facilitate LTH and their customers to access specific information electronically regardless where they are, as well as cater for future extension of LTH business operation.
	1. Project Management to ensure critical business priorities and decisions are made for the successful implementation and on time delivery of the project.
	2. Application Development for all systems modules.
	3. Training on all systems.
	4. System documentation for the new system.
	5. To procure, install and commission the necessary hardware and system software.
	6. Project implementation and technical support.
	7. Data Migration and Conversion.
	8. To build a Data Center and Business Recovery Center
	9. Network Infrastructure
	10. Operations Management
	11. Security
5.	Contract role (check one)
	ÿPrime Supplier ÿ Management Contractor ÿ Subcontractor ÿ Partner in a Joint Venture
6.	Amount of the total contract/subcontract/partner share (in specified currencies at completion, or at date of award for current contracts)
	Currency MYR Currency Currency
	$ 35,350,000
7.	Equivalent amount US$
	Total contract: $ 10,712,121; Subcontract: $_____; Partner share: $_____;
8.	Date of award/completion : 15th June 2004 – 14th June 2007 (36 months)

9.	Contract was completed __NA___ months ahead/behind original schedule (if behind, provide explanation).
10.	Contract was completed US$ __NA_____ equivalent under/over original contract amount (if over, provide explanation).
11.	Special contractual/technical requirements. *Not Applicable*
12.	Indicate the approximate percent of total contract value (and US$ amount) of Information System undertaken by subcontract, if any, and the nature of such Information System. *Not Applicable*

Note : NA – Not Applicable

1.	Number of contract	**HTP/06**
	Name of contract - **Ministry of International Trade & Industry (MITI) & Agencies Trade & Industry Information Exchange (MATRIIX)- Phase I**	
	Country – Government of Malaysia	
2.	Name of Purchaser - Ministry of International Trade & Industry (MITI)	
3.	Purchaser address - Block 10, Government Offices Complex, Street of Duta, 50622 Kuala Lumpur, Malaysia. Phone : 603-6203 3022, Fax : 603-6203 2337, Website : www.miti.gov.my	

4.	Nature of Information Systems and special features relevant to the contract for which the Bidding Documents are issued The main objective for development of MITI's information exchange system is to enable agencies under MITI and other external parties to access and share data or information via portal 1. Consultation services on system design and development of the portal system. 2. Setting up of the secured data centre for data storage, high bandwidth connectivity for agency link up. 3. Application development for front-end/back-end usage . 4. Providing network connectivity to MITI's Trade Commissioner Offices worldwide. 5. Providing support & maintenance
5.	Contract role (check one) ÿ Prime Supplier ÿ Management Contractor ÿ Subcontractor ÿ Partner in a Joint Venture
6.	Amount of the total contract/subcontract/partner share (in specified currencies at completion, or at date of award for current contracts) Currency MYR Currency Currency $ 38,611,876
7.	Equivalent amount US$ Total contract: $11,700,568; Subcontract: $_____; Partner share: $_____;
8.	Date of award/completion : 30th Dec 2002 / 30th Sept 2006
9.	Contract was completed __NA_ months ahead/behind original schedule (if behind, provide explanation).
10.	Contract was completed US$ __NA_____ equivalent under/over original contract amount (if over, provide explanation).
11.	Special contractual/technical requirements. *Not Applicable*

12.	Indicate the approximate percent of total contract value (and US$ amount) of Information System undertaken by subcontract, if any, and the nature of such Information System. *Not Applicable*

Note : NA – Not Applicable

1.	Number of contract	HTP/07
	Name of contract **- The Pension Online Workflow Environment (POWER) Project for Public Service Department**	
	Country – Government of Malaysia	
2.	Name of Purchaser – Public Service Department	
3.	Purchaser address – Public Service Department of Malaysia, Block C1 and C2, Parcel C, Federal Government Administration Center, 62510 Federal Territory Putrajaya. Tel : 03-8885 3000 / 03-8885 4000, Website : www.jpa.gov.my	

4.	Nature of Information Systems and special features relevant to the contract for which the Bidding Documents are issued This project emphasized on the modernisation of the Pension Administration System, delivering an integrated online system with centralised database for the processing, enforcement, monitoring, accounting and payment of the pension benefits. 1. Effective workflow management system to manage the record movements. 2. Digital imaging of physical documents and aggressive data entry process. 3. Implementing business system such as processing of pensioner benefits, financial & account and management information system. 4. Development of a resilient data centre for the centralised data repository. 5. Linking up with other government agencies (i.e. JPN, Ministry of Health and etc.) and financial institution (i.e. Bank Simpanan Nasional, Bumiputra Commerce) through robust network connectivity with high security features. 6. A 'hot site' facility and a periodical back up services ensure business continuity. 7. The system to be installed and implemented is also designed to cater for future system enhancements.
5.	Contract role (check one) ÿ Prime Supplier ÿ Management Contractor ÿ Subcontractor ÿ Partner in a Joint Venture
6.	Amount of the total contract/subcontract/partner share (in specified currencies at completion, or at date of award for current contracts) Currency MYR Currency Currency $34,491,137
7.	Equivalent amount US$ Total contract: $10,451,859; Subcontract: $_____; Partner share: $_____;
8.	Date of award/completion : 30th Jan 2001 / 30th Oct 2004

9.	Contract was completed __NA___ months ahead/behind original schedule (if behind, provide explanation).
10.	Contract was completed US$ __NA_____ equivalent under/over original contract amount (if over, provide explanation).
11.	Special contractual/technical requirements. *Not Applicable*
12.	Indicate the approximate percent of total contract value (and US$ amount) of Information System undertaken by subcontract, if any, and the nature of such Information System. *Not Applicable*

Note : NA – Not Applicable

1.	Number of contract	**HTP/08**
	Name of contract - **Supply of Blank Travel Documents and Printing System for Sri Lanka Department of Immigration & Emigration**	
	Country – Government of Sri Lanka	
2.	Name of Purchaser - Sri Lanka Department of Immigration & Emigration	
3.	Purchaser address - Department of Immigration and Emigration, 41 Ananda Rajakaruna Mawatha, Colombo 10, Sri Lanka. Tel : 94-11-5329000, Fax : 94-11-5329401, Website : www.immigration.gov.lk	

4.	Nature of Information Systems and special features relevant to the contract for which the Bidding Documents are issued Supply of 2,000,000 blank travel documents and a printing system (hardware and software) that produces Machine Readable Passports, which conform to the International Civil Aviation Organization (ICAO) Document 9303 standard with unique security features. 1. Develop complete production system for personalization of travel documents (capturing photo and signature images, printing of data page, dependant and observation page, quality assurance, integration with main system for information and status update, document allocation, user task allocation and report generation) 2. Project management 3. Supply of the travel document book and consumables 4. Supply and installation of the hardware and system software, 5. System implementation. 6. Training 7. Maintenance
5.	Contract role (check one) ÿ Prime Supplier ÿ Management Contractor ÿ Subcontractor ÿ Partner in a Joint Venture
6.	Amount of the total contract/subcontract/partner share (in specified currencies at completion, or at date of award for current contracts) Currency MYR Currency Currency $16,115,230
7.	Equivalent amount US$ Total contract: $ 4,883,403; Subcontract: $_____; Partner share: $_____;
8.	Date of award/completion : 31st Jan 2003 / 31st Jan 2008 or the complete printing of 2millions passports, which ever occurs earlier (inclusive 12 months Free of Charge Maintenance)

9.	Contract was completed __NA_ months ahead/behind original schedule (if behind, provide explanation).
10.	Contract was completed US$ __NA_____ equivalent under/over original contract amount (if over, provide explanation).
11.	Special contractual/technical requirements. *Not Applicable*
12.	Indicate the approximate percent of total contract value (and US$ amount) of Information System undertaken by subcontract, if any, and the nature of such Information System. *Not Applicable*

Note : NA – Not Applicable

Particular Information Systems Experience Record

Name of Bidder or partner of a ~~Joint Venture~~ / Consortium: **Epic Lanka (Pvt.) Ltd.**

On separate pages, using the format of Form given below, the Bidder is requested to list contracts of a similar nature, complexity, and requiring similar information technology and methodologies to the contract or contracts for which these Bidding Documents are issued, and which the Bidder has undertaken during the period, and of the number. Each partner of a Joint Venture / Consortium should separately provide details of its own relevant contracts. The contract value should be based on the payment currencies of the contracts converted into U.S. dollars, at the date of substantial completion, or for ongoing contracts at the time of award.

Name of Bidder or partner of a ~~Joint Venture~~ / Consortium: **Epic Lanka (Pvt.) Ltd.**

Use a separate sheet for each contract.

1.	Number of contract	**EPIC/01**
	Name of contract – **Design, Develop and Implementation of 2D Barcode based high Security ID Card Printing and Personalization System.**	
	Country – Sri Lanka.	
2.	Name of Purchaser – Airport & Aviation Service of Sri Lanka	
3.	Purchaser address – Airport & Aviation Service of Sri Lanka, Bandaranayake International Airport, Katunayaka.	

4.	Nature of Information Systems and special features relevant to the contract for which the Bidding Documents are issued
	The main responsibility was to design a proper, secure ID card printing and personalization system for Airport & Aviation Service of Sri Lanka. The cards have number of world class security features and currently the project was running without any major obstacles.
	1. Design and Print a High Security and High durable ID card with Photo Capturing, and Signature Capturing.
	2. Design and Develop a Card Management Software for Data entry, printing and report purposes
	3. Supply of the Cards and Consumables
	4. Supply and installation of the hardware and system software
	5. Training
	6. Maintenance
5.	Contract role (check one)
	√ Prime Supplier ÿ Management Contractor ÿ Subcontractor ÿ Partner in a Joint Venture / Consortium
6.	Amount of the total contract/subcontract/partner share (in specified currencies at completion, or at date of award for current contracts)
	Currency Currency Currency
	LKR. 3,946,166.00
7.	Equivalent amount US$
	Total contract: Subcontract: Partner share:
	$40,494.00
8.	Date of award/completion -08/2001– 11/2001
9.	Contract was completed __NA__ months ahead/behind original schedule (if behind, provide explanation).

10.	Contract was completed US$ __NA__ equivalent under/over original contract amount (if over, provide explanation).
11.	Special contractual/technical requirements: ***Not Applicable***
12.	Indicate the approximate percent of total contract value (and US$ amount) of Information System undertaken by subcontract, if any, and the nature of such Information System: ***Not Applicable***

NA – Not Applicable

1.	Number of contract	**EPIC/02**
	Name of contract – **Design, Develop and Implementation of Cash Collection and Cashiering Solution for Sri Lanka Telecom Cashiering Outlets**	
	Country – Sri Lanka	
2.	Name of Purchaser – Sri Lanka Telecom	
3.	Purchaser address – Sri Lanka Telecom, 5th Floor, Headquarters Building, Lotus Road, Colombo 01.	

4.	Nature of Information Systems and special features relevant to the contract for which the Bidding Documents are issued
	This solution is the one of the country's largest financial solutions, which operates from 300 SLT's Cashiering locations, covering the entire island. The solution supports payment collection facility of a 2 million subscriber-base which is connected to a range of different databases for authorization, validation, reconciliation and updating of the particular records as on-line and real-time basis. This solution comprised of;
	1. Payment record module
	2. Invoicing module
	3. Stock Management module
	4. Automated Reconciliation module
	5. Bank File Transfer module
	6. Customer Data Management module
	7. CODA Data Transfer module
5.	Contract role (check one)
	☑Prime Supplier ÿ Management Contractor ÿ Subcontractor ÿ Partner in a Joint Venture / Consortium
6.	Amount of the total contract/subcontract/partner share (in specified currencies at completion, or at date of award for current contracts)
	Currency Currency Currency
	LKR. 3,708,333.34
7.	Equivalent amount US$
	Total contract: Subcontract: Partner share:
	$38,054.00
8.	Date of award/completion -05/2003 – 10/2003
9.	Contract was completed _NA__ months ahead/behind original schedule (if behind, provide explanation).

10.	Contract was completed US$ __NA__ equivalent under/over original contract amount (if over, provide explanation).
11.	Special contractual/technical requirements: ***Not Applicable***
12.	Indicate the approximate percent of total contract value (and US$ amount) of Information System undertaken by subcontract, if any, and the nature of such Information System: ***Not Applicable***

NA – Not Applicable

1.	Number of contract	**EPIC/03**
	Name of contract – **Design, Develop and Maintain the Printing and Personalization System of "N" Series Passport and Supply of Blank Travel Documents**	
	Country – Sri Lanka	
2.	Name of Purchaser – Department of Immigration and Emigration of Sri Lanka	
3.	Purchaser address – Department of Immigration and Emigration of Sri Lanka, 41, Ananda Rajakaruna Mw, Colombo 10.	

4.	Nature of Information Systems and special features relevant to the contract for which the Bidding Documents are issued
	The main objective of this project was to incorporate a high secured, error free and reliable Passport Printing and Personalization system for the Department of Immigration and Emigration of Sri Lanka. Along with the expertise from Malaysia, the system was successfully designed, developed and implemented including coordination and supply of the hardware and the materials.
	8. Develop complete production system for personalization of travel documents (capturing photo and signature images, printing of data page, dependant and observation page, quality assurance, integration with main system for information and status update, document allocation, user task allocation and report generation)
	9. Project management
	10. Supply of the Blank Travel Document and consumables
	11. Supply and installation of the hardware and system software
	12. System implementation.
	13. Training
	14. Maintenance
5.	Contract role (check one) ÿ Prime Supplier ÿ Management Contractor ÿ Subcontractor √ Partner in a Joint Venture / Consortium
6.	Amount of the total contract/subcontract/partner share (in specified currencies at completion, or at date of award for current contracts) Currency Currency Currency LKR 10,885,165.00
7.	Equivalent amount US$ Total contract: Subcontract: Partner share: $ 4,883,403.00 $111,700.00
8.	Date of award/completion -03/2003 – 08/2003

9.	Contract was completed _NA__ months ahead/behind original schedule (if behind, provide explanation).
10.	Contract was completed US$ _NA__ equivalent under/over original contract amount (if over, provide explanation).
11.	Special contractual/technical requirements: *Not Applicable*
12.	Indicate the approximate percent of total contract value (and US$ amount) of Information System undertaken by subcontract, if any, and the nature of such Information System: *Not Applicable*

NA – Not Applicable

1.	Number of contract	EPIC/04
	Name of contract – **Design, Develop and Implementation of additional modules for Cash Collection and Cashiering Solution for Sri Lanka Telecom Cashiering Outlets**	
	Country – Sri Lanka	
2.	Name of Purchaser – Sri Lanka Telecom	
3.	Purchaser address – Sri Lanka Telecom, 5th Floor, Headquarters Building, Lotus Road, Colombo 01.	
4.	Nature of Information Systems and special features relevant to the contract for which the Bidding Documents are issued This involved additional modifications for the existing cash collection and cashiering system.	
5.	Contract role (check one) √ Prime Supplier　　ÿ Management Contractor　　ÿ Subcontractor　　ÿ Partner in a Joint Venture / Consortium	

6.	Amount of the total contract/subcontract/partner share (in specified currencies at completion, or at date of award for current contracts)
	Currency Currency Currency
	LKR. 4,400,000.00
7.	Equivalent amount US$
	Total contract: Subcontract: Partner share:
	$44,248.00
8.	Date of award/completion -09/2004 – 12/2004
9.	Contract was completed _*NA*__ months ahead/behind original schedule (if behind, provide explanation).
10.	Contract was completed US$ _*NA*__ equivalent under/over original contract amount (if over, provide explanation).
11.	Special contractual/technical requirements: **Not Applicable**
12.	Indicate the approximate percent of total contract value (and US$ amount) of Information System undertaken by subcontract, if any, and the nature of such Information System: **Not Applicable**

NA – Not Applicable

1.	Number of contract	**EPIC/05**
	Name of contract – **Design, Develop and Implementation of Multi Scheme/ Multi Merchant Loyalty Solution**	
	Country – Sri Lanka	
2.	Name of Purchaser – Ceylinco PLC Technologies (Pvt) Ltd	
3.	Purchaser address – Ceylinco PLC Technologies (Pvt) Ltd, 277, 2nd Floor, Union Place, Colombo 2.	

4.	Nature of Information Systems and special features relevant to the contract for which the Bidding Documents are issued
	This was the very first and the largest National level total loyalty solution implemented by Sri Lankan Company. The offered system is designed and developed to calculate, check and redeem loyalty points to customers via EDC/POS terminals. The solution contains;
	1. Card Issuing module
	2. Award, redeem and Settlement module
	3. TXN file upload and Batch processing module
	4. User Management and Reporting module
5.	Contract role (check one)
	√Prime Supplier ÿ Management Contractor ÿ Subcontractor ÿ Partner in a Joint Venture / Consortium
6.	Amount of the total contract/subcontract/partner share (in specified currencies at completion, or at date of award for current contracts)
	Currency Currency Currency
	LKR. 4,000,000.00
7.	Equivalent amount US$
	Total contract: Subcontract: Partner share:
	$38,956.00
8.	Date of award/completion - 03/2005 – 12/2005
9.	Contract was completed _NA__ months ahead/behind original schedule (if behind, provide explanation).
10.	Contract was completed US$ _NA__ equivalent under/over original contract amount (if over, provide explanation).
11.	Special contractual/technical requirements: ***Not Applicable***

12.	Indicate the approximate percent of total contract value (and US$ amount) of Information System undertaken by subcontract, if any, and the nature of such Information System: ***Not Applicable***

NA – Not Applicable

1.	Number of contract	**EPIC/06**
	Name of contract – **Design, Develop and Implementation of 2D Barcode based high Security ID Card Printing and Personalization System.**	
	Country – Sri Lanka.	
2.	Name of Purchaser – Sri Lanka Army	
3.	Purchaser address – Sri Lanka Army, Army Headquarters, Colombo 3.	
4.	Nature of Information Systems and special features relevant to the contract for which the Bidding Documents are issued

The main responsibility was to design a proper, secure ID card system for Sri Lanka Army. The card has number of world class security features and currently the project was running without any major obstacles.

  1. Design and Print a High Security and High durable ID card with Photo Capturing, Fingerprint Capturing and Signature Capturing.

  2. Design and Develop a Card Management Software for Data entry, printing and report purposes

  3. Design and develop mobile data capturing units

  4. Supply of the cards and consumables

  5. Supply and installation of the hardware and system software,

  6. Training

  7. Maintenance | |
| 5. | Contract role (check one)

√ Prime Supplier   ÿ Management Contractor   ÿ Subcontractor   ÿ Partner in a Joint Venture / Consortium | |

6.	Amount of the total contract/subcontract/partner share (in specified currencies at completion, or at date of award for current contracts) Currency Currency Currency LKR. 24,921,974.22
7.	Equivalent amount US$ Total contract: Subcontract: Partner share: $242,715.00
8.	Date of award/completion -11/2005 – 12/2005
9.	Contract was completed _NA__ months ahead/behind original schedule (if behind, provide explanation).
10.	Contract was completed US$ _NA__ equivalent under/over original contract amount (if over, provide explanation).
11.	Special contractual/technical requirements: **Not Applicable**
12.	Indicate the approximate percent of total contract value (and US$ amount) of Information System undertaken by subcontract, if any, and the nature of such Information System: **Not Applicable**

NA – Not Applicable

1.	Number of contract	**EPIC/07**
	Name of contract – **Design, Develop and Implementation of Cash Deposit and Collection Solution via EDC/POS terminals.**	
	Country – Sri Lanka	
2.	Name of Purchaser – Hong Kong & Shanghai Bank Corporation (HSBC).	
3.	Purchaser address – Hong Kong & Shanghai Bank Corporation (HSBC), 24, Sir Baron Jayathilake Mawatha, Colombo 1.	

4.	Nature of Information Systems and special features relevant to the contract for which the Bidding Documents are issued This solution was one of the landmark ePayment solution offered for Banking Industry in Sri Lanka. the project has enabled Account Holders of HSBC, which is one of the world's leading credit card issuing and acquiring bank in the world; to carry out their banking transactions with the bank, regardless of where the account is maintained, through the Sri Lankan's Post offices spread island wide. The project enables a fully automated cash collection, bill payment and deposit cash solution integrated with the banking system. The front end infrastructure for credit card operation is integrated with the banking solution, thereby converting all post officers in to mini-banks. Also, we are the only ICT solution provider in Sri Lanka that is capable of developing EDC/POS based secure payment solutions. Main modules are Transaction Switching module, Transaction Back end and Mini Bank Terminal module.
5.	Contract role (check one) √ Prime Supplier ÿ Management Contractor ÿ Subcontractor ÿ Partner in a Joint Venture / Consortium
6.	Amount of the total contract/subcontract/partner share (in specified currencies at completion, or at date of award for current contracts) Currency Currency Currency LKR. 4,250,000.00
7.	Equivalent amount US$ Total contract: Subcontract: Partner share: $38,870.00
8.	Date of award/completion -06/2006 – 09/2006
9.	Contract was completed _NA_ months ahead/behind original schedule (if behind, provide explanation).
10.	Contract was completed US$ _NA_ equivalent under/over original contract amount (if over, provide explanation).
11.	Special contractual/technical requirements: ***Not Applicable***

12.	Indicate the approximate percent of total contract value (and US$ amount) of Information System undertaken by subcontract, if any, and the nature of such Information System: ***Not Applicable***

NA – Not Applicable

1.	Number of contract	**EPIC/08**
	Name of contract – **Design, Develop and Implementation of Comprehensive PKI Based Information Security Policy and Network Security Solution.**	
	Country – Sri Lanka	
2.	Name of Purchaser – Sri Lanka Telecom	
3.	Purchaser address – Sri Lanka Telecom, 5th Floor, Headquarters Building, Lotus Road, Colombo 01.	
4.	Nature of Information Systems and special features relevant to the contract for which the Bidding Documents are issued This solution is the first large scale data security design, which was implemented by a Sri Lankan company. Te main requirement was to register the users operate in cashier outlets in order to track financial activities while giving a legal validity to those activities. Total project was successfully designed and developed using 35,000 Man hours. This contains; 1. Personalized Digital smart cards for uses 2. System fully covered by Digital Identities 3. each and every operational activity signed by digital keys 4. Encrypted data transfer	
5.	Contract role (check one) √ Prime Supplier ÿ Management Contractor ÿ Subcontractor ÿ Partner in a Joint Venture / Consortium	

6.	Amount of the total contract/subcontract/partner share (in specified currencies at completion, or at date of award for current contracts) Currency Currency Currency LKR. 21,090,000.00
7.	Equivalent amount US$ Total contract: Subcontract: Partner share: $192,884.00
8.	Date of award/completion -07/2006 – 11/2006
9.	Contract was completed _NA__ months ahead/behind original schedule (if behind, provide explanation).
10.	Contract was completed US$ _NA__ equivalent under/over original contract amount (if over, provide explanation).
11.	Special contractual/technical requirements: **Not Applicable**
12.	Indicate the approximate percent of total contract value (and US$ amount) of Information System undertaken by subcontract, if any, and the nature of such Information System: **Not Applicable**

NA – Not Applicable

1.	Number of contract	**EPIC/09**
	Name of contract – **Design, Develop and Implementation of Private Label Credit Card Solution.**	
	Country – Sri Lanka	
2.	Name of Purchaser – ABC Credit Card Company Limited	
3.	Purchaser address – ABC Credit Card Company Limited, 19A, Duplication Road, Colombo 04.	

4.	Nature of Information Systems and special features relevant to the contract for which the Bidding Documents are issued
	This was the first fully fledge, complete Credit card operation solution developed by a Sri Lankan company. This solution includes, EDC/POS front end applications, Transaction switching, reconciliation, reporting, card issuing, acquiring, merchant settlements and total back-end operation modules. Furthermore, the system is consisting of unique Gift card issuing module. Main modules are;
	1. Card Issuing
	a. Credit card Issuing
	b. Gift card Issuing (First Time in Sri Lanka)
	2. Acquiring
	3. Authorization
	4. Payment
	5. Mail Order
	6. Statement Generation
	7. Reporting
	8. Batch Processing
	9. Supporting Transactions
5.	Contract role (check one)
	☑Prime Supplier ÿ Management Contractor ÿ Subcontractor ÿ Partner in a Joint Venture / Consortium
6.	Amount of the total contract/subcontract/partner share (in specified currencies at completion, or at date of award for current contracts)
	Currency Currency Currency
	LKR 7,500,000.00
7.	Equivalent amount US$
	Total contract: Subcontract: Partner share:
	$68,593.00
8.	Date of award/completion -07/2006 – 11/2006
9.	Contract was completed _*NA*__ months ahead/behind original schedule (if behind, provide explanation).

10.	Contract was completed US$ _NA__ equivalent under/over original contract amount (if over, provide explanation).
11.	Special contractual/technical requirements: **Not Applicable**
12.	Indicate the approximate percent of total contract value (and US$ amount) of Information System undertaken by subcontract, if any, and the nature of such Information System: **Not Applicable**

NA – Not Applicable

1.	Number of contract	**EPIC/10**
	Name of contract – **Decentralization Program of Printing and Personalization System of National Passport to Anuradhapure, Matara & Kandy (Branch Extension Project).**	
	Country – Sri Lanka	
2.	Name of Purchaser – Department of Immigration and Emigration of Sri Lanka	
3.	Purchaser address - Department of Immigration and Emigration of Sri Lanka, 41, Ananda Rajakaruna Mw, Colombo 10.	

4.	Nature of Information Systems and special features relevant to the contract for which the Bidding Documents are issued
	The main requirement was to decentralize the head office passport office issuance in order to provide a better service and convenient service to applicants. Currently, the project was successfully running all the remote locations.
	1. Develop complete production system for personalization of travel documents (capturing photo and signature images, printing of data page, dependant and observation page, quality assurance, integration with main system for information and status update, document allocation, user task allocation and report generation)
	2. Project management
	3. Supply of the travel document book and consumables
	4. Supply and installation of the hardware and system software,
	5. System implementation.
	6. Training
	7. Maintenance
5.	Contract role (check one)
	√ Prime Supplier ÿ Management Contractor ÿ Subcontractor ÿ Partner in a Joint Venture / Consortium
6.	Amount of the total contract/subcontract/partner share (in specified currencies at completion, or at date of award for current contracts)
	Currency Currency Currency
	LKR 21,810,882.00
7.	Equivalent amount US$
	Total contract: Subcontract: Partner share:
	$199,478.00
8.	Date of award/completion -08/2006 – 12/2006

9.	Contract was completed _NA__ months ahead/behind original schedule (if behind, provide explanation).
10.	Contract was completed US$ _NA__ equivalent under/over original contract amount (if over, provide explanation).
11.	Special contractual/technical requirements: ***Not Applicable***
12.	Indicate the approximate percent of total contract value (and US$ amount) of Information System undertaken by subcontract, if any, and the nature of such Information System: ***Not Applicable***

NA – Not Applicable

1.	Number of contract	**EPIC/11**
	Name of contract – **Design, Develop and Implementation of a Comprehensive PKI Based Information Security Policy and Network Security Solution.**	
	Country – Sri Lanka.	
2.	Name of Purchaser – Department of Immigration and Emigration of Sri Lanka	
3.	Purchaser address – Department of Immigration and Emigration of Sri Lanka, 41, Ananda Rajakaruna Mw, Colombo 10.	
4.	Nature of Information Systems and special features relevant to the contract for which the Bidding Documents are issued This project was to design and develop a Public Key Infrastructure (PKI) based travel document printing system. This is the largest national/government level PKI solution implementation in Sri Lanka. it contains; 1. Personalize digital smart cards for users 2. System based Digital Identification 3. Digitally signed operations logs 4. Secure real time data transfer from decentralized branches 5. Uses SSL technology	

5.	Contract role (check one) √Prime Supplier ÿ Management Contractor ÿ Subcontractor ÿ Partner in a Joint Venture / Consortium
6.	Amount of the total contract/subcontract/partner share (in specified currencies at completion, or at date of award for current contracts) Currency Currency Currency LKR 8,900,000.00
7.	Equivalent amount US$ Total contract: Subcontract: Partner share: $81,397.00
8.	Date of award/completion -08/2006 – 12/2006
9.	Contract was completed _NA_ months ahead/behind original schedule (if behind, provide explanation).
10.	Contract was completed US$ _NA_ equivalent under/over original contract amount (if over, provide explanation).
11.	Special contractual/technical requirements: **Not Applicable**
12.	Indicate the approximate percent of total contract value (and US$ amount) of Information System undertaken by subcontract, if any, and the nature of such Information System: **Not Applicable**

NA – Not Applicable

1.	Number of contract	**EPIC/12**
	Name of contract – **Design, Develop and Implementation of Mobile Workforce Management & Enterprise Resource Management Solution.**	
	Country – Sri Lanka.	
2.	Name of Purchaser – Sri Lanka Telecom	

3.	Purchaser address – Sri Lanka Telecom, 5th Floor, Headquarters Building, Lotus Road, Colombo 01.

4.	Nature of Information Systems and special features relevant to the contract for which the Bidding Documents are issued
	
	The main objective of this solution was to design a proper system to mange the SLT workforce while providing excellent service to the customers. It comprised of analyzing, designing and developing following modules;
	
	    1. Fault Management Module
	
	    2. New Connection Module
	
	    3. Rehabilitation Module
	
	    4. Network Development Module
	
	    5. Vehicle Management Module
	
	    6. Sales and Marketing Module

5.	Contract role (check one) √ Prime Supplier ÿ Management Contractor ÿ Subcontractor ÿ Partner in a Joint Venture / Consortium
6.	Amount of the total contract/subcontract/partner share (in specified currencies at completion, or at date of award for current contracts) Currency Currency Currency LKR 40,600,000.00
7.	Equivalent amount US$ Total contract: Subcontract: Partner share: $376,868.00
8.	Date of award/completion -10/2006 – 05/2008
9.	Contract was completed _NA__ months ahead/behind original schedule (if behind, provide explanation).

10.	Contract was completed US$ __*NA*__ equivalent under/over original contract amount (if over, provide explanation).
11.	Special contractual/technical requirements: ***Not Applicable***
12.	Indicate the approximate percent of total contract value (and US$ amount) of Information System undertaken by subcontract, if any, and the nature of such Information System: ***Not Applicable***

NA – Not Applicable

1.	Number of contract	**EPIC/13**
	Name of contract – **2D Barcode based Entry/Exit Solution to Army Cadres**	
	Country – Sri Lanka.	
2.	Name of Purchaser – Sri Lanka Army	
3.	Purchaser address Sri Lanka Army, Army Headquarters, Colombo 3.	
4.	Nature of Information Systems and special features relevant to the contract for which the Bidding Documents are issued This solution was designed to identify and verify army officers enter to the Sri Lanka Army Headquarters using 2D barcode in the exiting ID card. The fingerprint of the Card holder is stored in the card and uses for the verification purpose. A special DSVII-SW readers are used for this purpose.	
5.	Contract role (check one) √Prime Supplier ÿ Management Contractor ÿ Subcontractor ÿ Partner in a Joint Venture / Consortium	
6.	Amount of the total contract/subcontract/partner share (in specified currencies at completion, or at date of award for current contracts) Currency Currency Currency LKR 2,610,500.00	

7.	Equivalent amount US$ Total contract: Subcontract: Partner share: $23,875.00
8.	Date of award/completion -11/2006 – 12/2006
9.	Contract was completed _NA__ months ahead/behind original schedule (if behind, provide explanation).
10.	Contract was completed US$ _NA__ equivalent under/over original contract amount (if over, provide explanation).
11.	Special contractual/technical requirements: ***Not Applicable***
12.	Indicate the approximate percent of total contract value (and US$ amount) of Information System undertaken by subcontract, if any, and the nature of such Information System: ***Not Applicable***

NA – Not Applicable

1.	Number of contract	**EPIC/14**
	Name of contract – **Supply, Install and Commissioning of Equipment for expand the existing High Security ID Card Printing and Personalization System**	
	Country – Sri Lanka.	
2.	Name of Purchaser – Sri Lanka Army	
3.	Purchaser address Sri Lanka Army, Army Headquarters, Colombo 3.	

4.	Nature of Information Systems and special features relevant to the contract for which the Bidding Documents are issued
	This project was to supply additional modifications to the existing ID card printing and personalization system. An additional re-transfer printer was installed in order to improve the daily printing capacity.
5.	Contract role (check one)
	√Prime Supplier ÿ Management Contractor ÿ Subcontractor ÿ Partner in a Joint Venture / Consortium
6.	Amount of the total contract/subcontract/partner share (in specified currencies at completion, or at date of award for current contracts)
	Currency Currency Currency
	LKR 1,060,415.00
7.	Equivalent amount US$
	Total contract: Subcontract: Partner share:
	$9,843.00
8.	Date of award/completion -09/2007 – 09/2007
9.	Contract was completed _NA__ months ahead/behind original schedule (if behind, provide explanation).
10.	Contract was completed US$ _NA__ equivalent under/over original contract amount (if over, provide explanation).
11.	Special contractual/technical requirements: *Not Applicable*
12.	Indicate the approximate percent of total contract value (and US$ amount) of Information System undertaken by subcontract, if any, and the nature of such Information System: *Not Applicable*

NA – Not Applicable

| 1. | Number of contract | EPIC/15 |

	Name of contract – **Design, Develop and Implementation of Amex Credit card Text File Maintenance System**
	Country – Sri Lanka.
2.	Name of Purchaser – Nation Trust Bank
3.	Purchaser address – Nation Trust Bank, York Street, Colombo 02.
4.	Nature of Information Systems and special features relevant to the contract for which the Bidding Documents are issued This system contained designing and developing of Inter Bank Data file transfer system to nation Trust Bank. The main modules of the system are; 1. Administration module for Nation Trust Bank 2. Chief module for other Banks/ Institution 3. Institution management module 4. File uploading facility 5. 2nd level Authentication Dual Authentication System
5.	Contract role (check one) √ Prime Supplier ÿ Management Contractor ÿ Subcontractor ÿ Partner in a Joint Venture / Consortium
6.	Amount of the total contract/subcontract/partner share (in specified currencies at completion, or at date of award for current contracts) Currency Currency Currency LKR 400,000.00
7.	Equivalent amount US$ Total contract: Subcontract: Partner share: $3713.00
8.	Date of award/completion -06/2007 – 11/2007

9.	Contract was completed _NA__ months ahead/behind original schedule (if behind, provide explanation).
10.	Contract was completed US$ _NA__ equivalent under/over original contract amount (if over, provide explanation).
11.	Special contractual/technical requirements: *Not Applicable*
12.	Indicate the approximate percent of total contract value (and US$ amount) of Information System undertaken by subcontract, if any, and the nature of such Information System: *Not Applicable*

1.	Number of contract	**EPIC/16**
	Name of contract – **Supply of EDC/POS Based Credit Card Acquiring Module with EDC/POS Terminals**	
	Country – Sri Lanka.	
2.	Name of Purchaser – Hong Kong & Shanghai Bank Corporation (HSBC).	
3.	Purchaser address – Hong Kong & Shanghai Bank Corporation (HSBC), 24, Sir Baron Jayathilake Mawatha, Colombo 1	
4.	Nature of Information Systems and special features relevant to the contract for which the Bidding Documents are issued Design, development and Implementation of Banking Transactions based on ISO-8583 message format and Island wide operations along with user training and technical support	
5.	Contract role (check one) √ Prime Supplier ÿ Management Contractor ÿ Subcontractor ÿ Partner in a Joint Venture / Consortium	
6.	Amount of the total contract/subcontract/partner share (in specified currencies at completion, or at date of award for current contracts) Currency Currency Currency LKR 78,690,000.00	

7.	Equivalent amount US$ Total contract: Subcontract: Partner share: $725,053.00
8.	Date of award/completion -01/2006 – 05/2008
9.	Contract was completed _NA_ months ahead/behind original schedule (if behind, provide explanation).
10.	Contract was completed US$ _NA_ equivalent under/over original contract amount (if over, provide explanation).
11.	Special contractual/technical requirements: **Not Applicable**
12.	Indicate the approximate percent of total contract value (and US$ amount) of Information System undertaken by subcontract, if any, and the nature of such Information System: **Not Applicable**

NA - *Not Applicable*

1.	Number of contract	**EPIC/17**
	Name of contract – **Supply of EDC/POS Based Credit Card Acquiring Module with EDC/POS Terminals**	
	Country – Sri Lanka.	
2.	Name of Purchaser – Bank of Ceylon	
3.	Purchaser address – Bank of Ceylon, Head office, Card Center, Colombo 1	
4.	Nature of Information Systems and special features relevant to the contract for which the Bidding Documents are issued Design, development and Implementation of Banking Transactions based on ISO-8583 message format and Island wide operations along with user training and technical support	

5.	Contract role (check one) √Prime Supplier ÿ Management Contractor ÿ Subcontractor ÿ Partner in a Joint Venture / Consortium
6.	Amount of the total contract/subcontract/partner share (in specified currencies at completion, or at date of award for current contracts) Currency Currency Currency LKR 50,520,000.00
7.	Equivalent amount US$ Total contract: Subcontract: Partner share: $ 488,919.00
8.	Date of award/completion -01/2003 – 05/2008
9.	Contract was completed _NA__ months ahead/behind original schedule (if behind, provide explanation).
10.	Contract was completed US$ _NA__ equivalent under/over original contract amount (if over, provide explanation).
11.	Special contractual/technical requirements: ***Not Applicable***
12.	Indicate the approximate percent of total contract value (and US$ amount) of Information System undertaken by subcontract, if any, and the nature of such Information System: ***Not Applicable***

NA - *Not Applicable*

1..	Number of contract	**EPIC/18**
	Name of contract – **Supply of EDC/POS Based Credit Card Acquiring Module with EDC/POS Terminals**	
	Country – Sri Lanka.	
2.	Name of Purchaser – Hatton National Bank	

3.	Purchaser address – Hatton National Bank, 479, T B Jayah Mawatha, Colombo 10.
4.	Nature of Information Systems and special features relevant to the contract for which the Bidding Documents are issued Design, development and Implementation of Banking Transactions based on ISO-8583 message format and Island wide operations along with user training and technical support
5.	Contract role (check one) √ Prime Supplier ÿ Management Contractor ÿ Subcontractor ÿ Partner in a Joint Venture / Consortium
6.	Amount of the total contract/subcontract/partner share (in specified currencies at completion, or at date of award for current contracts) Currency Currency Currency LKR 17,830,000.00
7.	Equivalent amount US$ Total contract: Subcontract: Partner share: $167,292.00
8.	Date of award/completion -01/2005 – 05/2008
9.	Contract was completed _NA__ months ahead/behind original schedule (if behind, provide explanation).
10.	Contract was completed US$ _NA__ equivalent under/over original contract amount (if over, provide explanation).
11.	Special contractual/technical requirements: **Not Applicable**
12.	Indicate the approximate percent of total contract value (and US$ amount) of Information System undertaken by subcontract, if any, and the nature of such Information System: **Not Applicable**

NA - **Not Applicable**

1.	Number of contract	EPIC/19
	Name of contract – **Supply of EDC/POS Based Credit Card Acquiring Module with EDC/POS Terminals**	
	Country – Sri Lanka.	
2.	Name of Purchaser – Seylan Bank	
3.	Purchaser address – Seylan Bank, Ceylinco – Seylan Tower, Galle Road, Colombo 03	
4.	Nature of Information Systems and special features relevant to the contract for which the Bidding Documents are issued Design, development and Implementation of Banking Transactions based on ISO-8583 message format and Island wide operations along with user training and technical support	
5.	Contract role (check one) ☑ Prime Supplier ÿ Management Contractor ÿ Subcontractor ÿ Partner in a Joint Venture / Consortium	
6.	Amount of the total contract/subcontract/partner share (in specified currencies at completion, or at date of award for current contracts) Currency Currency Currency LKR 900,000.00	
7.	Equivalent amount US$ Total contract: Subcontract: Partner share: $8,765.00	
8.	Date of award/completion -01/2005 – 12/2006	
9.	Contract was completed _NA_ months ahead/behind original schedule (if behind, provide explanation).	
10.	Contract was completed US$ _NA_ equivalent under/over original contract amount (if over, provide explanation).	
11.	Special contractual/technical requirements: **Not Applicable**	

12.	Indicate the approximate percent of total contract value (and US$ amount) of Information System undertaken by subcontract, if any, and the nature of such Information System: ***Not Applicable***

NA - *Not Applicable*

1.	Number of contract	**EPIC/20**
	Name of contract – **Supply of EDC/POS Based Credit Card Acquiring Module with EDC/POS Terminals**	
	Country – Sri Lanka.	
2.	Name of Purchaser – Standard Chartered Bank	
3.	Purchaser address – Standard Chartered Bank, 37, York Street, Colombo 01	
4.	Nature of Information Systems and special features relevant to the contract for which the Bidding Documents are issued Design, development and Implementation of Banking Transactions based on ISO-8583 message format and Island wide operations along with user training and technical support	
5.	Contract role (check one) √ Prime Supplier ÿ Management Contractor ÿ Subcontractor ÿ Partner in a Joint Venture / Consortium	
6.	Amount of the total contract/subcontract/partner share (in specified currencies at completion, or at date of award for current contracts) Currency Currency Currency LKR 3,200,000.00	
7.	Equivalent amount US$ Total contract: Subcontract: Partner share: $30,186.00	
8.	Date of award/completion -01/2005 – 12/2007	

9.	Contract was completed _NA__ months ahead/behind original schedule (if behind, provide explanation).
10.	Contract was completed US$ _NA__ equivalent under/over original contract amount (if over, provide explanation).
11.	Special contractual/technical requirements: *Not Applicable*
12.	Indicate the approximate percent of total contract value (and US$ amount) of Information System undertaken by subcontract, if any, and the nature of such Information System: *Not Applicable*

NA - *Not Applicable*

1.	Number of contract	EPIC/21
	Name of contract – **Supply of EDC/POS Based Credit Card Acquiring Module with EDC/POS Terminals**	
	Country – Sri Lanka.	
2.	Name of Purchaser – Sampath Bank Ltd.	
3.	Purchaser address – Sampath Bank Ltd., No 110, Sir James Peiris Mawatha, Colombo 2.	
4.	Nature of Information Systems and special features relevant to the contract for which the Bidding Documents are issued Design, development and Implementation of Banking Transactions based on ISO-8583 message format and Island wide operations along with user training and technical support	
5.	Contract role (check one) √Prime Supplier ÿ Management Contractor ÿ Subcontractor ÿ Partner in a Joint Venture / Consortium	
6.	Amount of the total contract/subcontract/partner share (in specified currencies at completion, or at date of award for current contracts) Currency Currency Currency LKR 40,350,000.00	

7.	Equivalent amount US$ Total contract: Subcontract: Partner share: $390,686.00
8.	Date of award/completion -01/2004 – 05/2008
9.	Contract was completed _NA_ months ahead/behind original schedule (if behind, provide explanation).
10.	Contract was completed US$ _NA_ equivalent under/over original contract amount (if over, provide explanation).
11.	Special contractual/technical requirements: *Not Applicable*
12.	Indicate the approximate percent of total contract value (and US$ amount) of Information System undertaken by subcontract, if any, and the nature of such Information System: *Not Applicable*

NA - *Not Applicable*

1.	Number of contract	**EPIC/22**
	Name of contract – **Supply of EDC/POS Based Credit Card Acquiring Module with EDC/POS Terminals**	
	Country – Sri Lanka.	
2.	Name of Purchaser – Nation Trust Bank	
3.	Purchaser address – Nation Trust Bank, York Street, Colombo 02	
4.	Nature of Information Systems and special features relevant to the contract for which the Bidding Documents are issued Design, development and Implementation of Banking Transactions based on ISO-8583 message format and Island wide operations along with user training and technical support	

5.	Contract role (check one) ☑Prime Supplier ÿ Management Contractor ÿ Subcontractor ÿ Partner in a Joint Venture / Consortium
6.	Amount of the total contract/subcontract/partner share (in specified currencies at completion, or at date of award for current contracts) Currency Currency Currency LKR 54,990,000.00
7.	Equivalent amount US$ Total contract: Subcontract: Partner share: $532,178.00
8.	Date of award/completion -01/2003 – 05/2008
9.	Contract was completed _NA__ months ahead/behind original schedule (if behind, provide explanation).
10.	Contract was completed US$ _NA__ equivalent under/over original contract amount (if over, provide explanation).
11.	Special contractual/technical requirements: **Not Applicable**
12.	Indicate the approximate percent of total contract value (and US$ amount) of Information System undertaken by subcontract, if any, and the nature of such Information System: **Not Applicable**

NA - *Not Applicable*

1.	Number of contract	**EPIC/23**
	Name of contract – **Supply of EDC/POS Based Credit Card Acquiring Module with EDC/POS Terminals**	
	Country – Sri Lanka.	
2.	Name of Purchaser – Commercial Bank of Ceylon Ltd	

3.	Purchaser address – Commercial Bank of Ceylon Ltd, Head Office, Bristol Street, Colombo 01
4.	Nature of Information Systems and special features relevant to the contract for which the Bidding Documents are issued 6. Design, development and Implementation of Banking Transactions based on ISO-8583 message format and Island wide operations along with user training and technical support
5.	Contract role (check one) √Prime Supplier ÿ Management Contractor ÿ Subcontractor ÿ Partner in a Joint Venture / Consortium
6.	Amount of the total contract/subcontract/partner share (in specified currencies at completion, or at date of award for current contracts) Currency Currency Currency LKR 3,940,000.00
7.	Equivalent amount US$ Total contract: Subcontract: Partner share: $3,697.00
8.	Date of award/completion -01/2005 – 05/2008
9.	Contract was completed _NA__ months ahead/behind original schedule (if behind, provide explanation).
10.	Contract was completed US$ _NA__ equivalent under/over original contract amount (if over, provide explanation).
11.	Special contractual/technical requirements: *Not Applicable*
12.	Indicate the approximate percent of total contract value (and US$ amount) of Information System undertaken by subcontract, if any, and the nature of such Information System: *Not Applicable*

NA - *Not Applicable*

1.	Number of contract	EPIC/24
	Name of contract – **Supply of EDC/POS Based Credit Card Acquiring Module with EDC/POS Terminals**	
	Country – Sri Lanka.	
2.	Name of Purchaser – Golden Key Credit Card Company (Pvt) Ltd	
3.	Purchaser address – Golden Key Credit Card Company Ltd, Ceylinco Center, No2, R.A. De Mel Mawatha, Colombo 4.	
4.	Nature of Information Systems and special features relevant to the contract for which the Bidding Documents are issued Design, development and Implementation of Banking Transactions based on ISO-8583 message format and Island wide operations along with user training and technical support	
5.	Contract role (check one) ☑Prime Supplier ÿ Management Contractor ÿ Subcontractor ÿ Partner in a Joint Venture / Consortium	
6.	Amount of the total contract/subcontract/partner share (in specified currencies at completion, or at date of award for current contracts) Currency Currency Currency LKR 9,590,000.00	
7.	Equivalent amount US$ Total contract: Subcontract: Partner share: $93,946.00	
8.	Date of award/completion -01/2003 – 12/2006	
9.	Contract was completed _*NA*__ months ahead/behind original schedule (if behind, provide explanation).	
10.	Contract was completed US$ _*NA*__ equivalent under/over original contract amount (if over, provide explanation).	

11.	Special contractual/technical requirements: ***Not Applicable***
12.	Indicate the approximate percent of total contract value (and US$ amount) of Information System undertaken by subcontract, if any, and the nature of such Information System: ***Not Applicable***

NA - *Not Applicable*

1.	Number of contract	**EPIC/25**
	Name of contract – **Supply of EDC/POS Based Credit Card Acquiring Module with EDC/POS Terminals**	
	Country – Sri Lanka.	
2.	Name of Purchaser – ABC Credit Card Company Ltd.	
3.	Purchaser address – ABC Credit Card Company Ltd., 19A, Duplication Road, Colombo 04.	
4.	Nature of Information Systems and special features relevant to the contract for which the Bidding Documents are issued Design, development and Implementation of Banking Transactions based on ISO-8583 message format and Island wide operations along with user training and technical support.	
5.	Contract role (check one) √ Prime Supplier ÿ Management Contractor ÿ Subcontractor ÿ Partner in a Joint Venture / Consortium	
6.	Amount of the total contract/subcontract/partner share (in specified currencies at completion, or at date of award for current contracts) Currency Currency Currency LKR 10,420,000.00	

7.	Equivalent amount US$ Total contract: Subcontract: Partner share: $96,010.00
8.	Date of award/completion -01/2006 – 05/2008
9.	Contract was completed _*NA*__ months ahead/behind original schedule (if behind, provide explanation).
10.	Contract was completed US$ _*NA*__ equivalent under/over original contract amount (if over, provide explanation).
11.	Special contractual/technical requirements: ***Not Applicable***
12.	Indicate the approximate percent of total contract value (and US$ amount) of Information System undertaken by subcontract, if any, and the nature of such Information System: ***Not Applicable***

NA - ***Not Applicable***

Particular Information Systems Experience Record

Name of Bidder or partner of a ~~Joint Venture~~ / Consortium **OpSec Security, Inc**.

On separate pages, using the format of Form given below, the Bidder is requested to list contracts of a similar nature, complexity, and requiring similar information technology and methodologies to the contract or contracts for which these Bidding Documents are issued, and which the Bidder has undertaken during the period, and of the number. Each partner of a Joint Venture / Consortium should separately provide details of its own relevant contracts. The contract value should be based on the payment currencies of the contracts converted into U.S. dollars, at the date of substantial completion, or for ongoing contracts at the time of award.

Name of Bidder or partner of a ~~Joint Venture~~ / Consortium **OpSec Security, Inc**.

Use a separate sheet for each contract.

1.	Number of contract	
	Name of contract Mexico Consular ID Card	
	Country Mexico (used for Mexican citizen residing in the United States	
2.	Name of Purchaser Mexican Consulate	
3.	Purchaser address 111 S. Independence Mall E, 310 The Bourse Building Philadelphia, PA 19106	
4.	Nature of Information Systems and special features relevant to the contract for which the Bidding Documents are issued Using pre-printed teslin, each card is personalized and then laminated with polyester layer on front and back of the personalized card.	
5.	Contract role (check one) X Prime Supplier ÿ Management Contractor ÿ Subcontractor ÿ Partner in a Joint Venture / Consortium	
6.	Amount of the total contract/subcontract/partner share (in specified currencies at completion, or at date of award for current contracts) Currency Paid in U.S. dollars Currency Currency	

7.	Equivalent amount US$ Contract paid to OpSec Total contract: $1.2 million; Subcontract: $_0_; Partner share: $__0_
8.	Date of award/completion March 2008
9.	Contract was completed _____ months ahead/behind original schedule (if behind, provide explanation). On-going
10.	Contract was completed US$ 1.2 million at original contract price equivalent under/over original contract amount (if over, provide explanation).
11.	Special contractual/technical requirements. Shipping to the 35 Mexican consulates in the U.S>
12.	Indicate the approximate percent of total contract value (and US$ amount) of Information System undertaken by subcontract, if any, and the nature of such Information System. 0%

Name of Bidder or partner of ~~Joint Venture~~ /   Consortium   **OpSec Security, Inc**.

Use a separate sheet for each contract.

1.	Number of contract	
	Name of contract U.S. military Identification cards –Rapids Program	
	Country USA	
2.	Name of Purchaser U.S. Government Printing Office	
3.	Purchaser address 732 North Capital Street, NW Washington, DC 20401	
4.	Nature of Information Systems and special features relevant to the contract for which the Bidding Documents are issued Specific holographic design and laminate required for contract	
5.	Contract role (check one) X Prime Supplier ÿ Management Contractor ÿ Subcontractor ÿ Partner in a Joint Venture / Consortium	

6.	Amount of the total contract/subcontract/partner share (in specified currencies at completion, or at date of award for current contracts) Paid in U.S. dollars Currency _____ Currency _____ Currency _____
7.	Equivalent amount US$ Paid to OpSec only Total contract: $_$5.6 million; sub contract: $_0%; Partner share: $___0%_;
8.	Date of award/completion 2010
9.	Contract was completed _____ months ahead/behind original schedule (if behind, provide explanation). Contract still continuing
10.	Contract was completed US$ _5.6 million still continuing per contract amount on budget
11.	Special contractual/technical requirements. Printed teslin with perforated card separated after lamination and then laminated in high security pouch
12.	Indicate the approximate percent of total contract value (and US$ amount) of Information System undertaken by subcontract, if any, and the nature of such Information System. 0%

Name of Bidder or partner of a Joint Venture / Consortium Prime Contractor   **Ciccone Calcografica, SA**

Use a separate sheet for each contract.

1.	Number of contract	
	Name of contract National Police Identification Card	
	Country Argentina	
2.	Name of Purchaser Ciccone Calcografica, SA	
3.	Purchaser address Ruta Panamericana Km 25,500 (B1611 DFT) Don Torcuato BS AS Argentina	

4.	Nature of Information Systems and special features relevant to the contract for which the Bidding Documents are issued personalize 4-up teslin sheets using laser toner and then personalized cards are then laminated in roll to roll laminators and finally die-cut delivering to end user
5.	Contract role (check one) ÿ Prime Supplier ÿ Management Contractor X Subcontractor ÿ Partner in a Joint Venture / Consortium
6.	Amount of the total contract/subcontract/partner share (in specified currencies at completion, or at date of award for current contracts) Paid in U.S. dollars Currency Currency Currency
7.	Equivalent amount US$ Total contract: $_____; Subcontract: $_____$1.4 million; Partner share: $_____;
8.	Date of award/completion on going till 2009
9.	Contract was completed _____ months ahead/behind original schedule (if behind, provide explanation). Contract is on-going and meeting all requirements
10.	Contract was completed US$ _____ equivalent under/over original contract amount (if over, provide explanation). Contract on-going and within quoted pricing
11.	Special contractual/technical requirements. Coating two OVD's on separate laminate webs and create finished cards in register with the pre-printed teslin sheet
12.	Indicate the approximate percent of total contract value (and US$ amount) of Information System undertaken by subcontract, if any, and the nature of such Information System. NONE

Name of Bidder or partner of a ~~Joint Venture~~ / Consortium **OpSec Security, Inc**.

Unisys De Mexico S.A. DE C.V.

Use a separate sheet for each contract.

1.	Number of contract	
	Name of contract Mexican Voter ID Credential	
	Country Mexico	
2.	Name of Purchaser Unisys De Mexico S.A. DE C.V.	
3.	Purchaser address Alfonso Napoles Gandara No. 50	
4.	Nature of Information Systems and special features relevant to the contract for which the Bidding Documents are issued The prime contractor is operating a central issuance facility at the Mexican Electoral Committee facilities in Mexico. They personalize 18-up teslin sheets using Digital offset Indigo printers. Personalized cards are then laminated in roll-to-roll laminators die cut using 3-up punch cutters and finally video inspected	
5.	Contract role (check one) ÿ Prime Supplier ÿ Management Contractor XSubcontractor ÿ Partner in a Joint Venture / Consortium	
6.	Amount of the total contract/subcontract/partner share (in specified currencies at completion, or at date of award for current contracts) Paid in U.S. dollars Currency Currency Currency	
7.	Equivalent amount US$ Total contract: $_____; Subcontract: $_5.4 million Partner share: $_____;	
8.	Date of award/completion Calendar 2004	
9.	Contract was completed _on schedule ahead/behind original schedule (if behind, provide explanation).	

10.	Contract was completed US$ _as per originally bid contract original contract amount (if over, provide explanation).
11.	Special contractual/technical requirements. Must operate central issuance facility at the Mexican Electoral Committee facilities in Mexico
12.	Indicate the approximate percent of total contract value (and US$ amount) of Information System undertaken by subcontract, if any, and the nature of such Information System. NONE

Current Contract Commitments / Work in Progress

Name of Bidder or partner of a ~~Joint Venture~~ / Consortium : **HeiTech Padu Berhad**

Bidders and each partner to an Joint Venture / Consortium bid should provide information on their current commitments on all contracts that have been awarded, or for which a letter of intent or acceptance has been received, or for contracts approaching completion, but for which an unqualified, full completion certificate has yet to be issued.

Name of contract	Purchaser, contact address/tel./fax	Value of outstanding Information System (current US$ equivalent)	Estimated completion date	Average monthly invoicing over last six months (US$/month)
1. HTP/01	Mr Zakaria Awi, Director, IT Department Ministry of Home Affairs, Headquarter, National Registration Department, Level 4, Block 2G5, Presint 2, Federal Government Administration Center, 62100 Federal Territory Putrajaya, Malaysia. Phone: (603) 88807000 / 88807013, Fax: (603) 88807623, Email:zakaria@jpn.gov.my, Website : www.jpn.gov.my	$ 29,232,272	30th June 2008	
2. HTP/02	Mr Haji Jaafar Bin Jamaan, IT Director Legal Affairs Department, Prime Minister Department, Level 4-7, Legal Affairs Building, Precint 3, Federal Government Administration Center, 62100 Federal Territory Putrajaya, Malaysia Tel: (603) 8885 1000, Fax: (603) 8885 1048/1051, Website : www.bheuu.gov.my	$ 1,310,533	30th June 2008	

Name of contract	Purchaser, contact address/tel./fax	Value of outstanding Information System (current US$ equivalent)	Estimated completion date	Average monthly invoicing over last six months (US$/month)
3. HTP/03	Lt Kol Suri Mohd Daud, RMAF, 19th Floor, SU-30MKM In-Country Project Management Team, Defense Tower, Street of Padang Tembak, Kuala Lumpur, Malaysia. Phone : (603) 20714275, Fax : (603) 26914197, Website: www.mod.gov.my	$ 78,181,818	30th June 2019	
4. HTP/04	Mr Audie H. Sambul, BSc. Head of Department District Administration of MINAHASA, Department of Population and Public Civil, Street of Maesa, Sasaran, Tondano 95616, North Sulawesi, Indonesia. Phone : (0431) 321278, Fax : (0431)-321003	Nil	05th July 2024	
5. HTP/05	Mr Haji. Mohd Yassin Haji. Tahir, Senior General Manager Department of Information Technology, LEMBAGA TABUNG HAJI, 201 Street of Tun Razak, Kuala Lumpur, Malaysia. Tel : (603) 2163 0579, Fax : (603) 2163 0579, Email: yassin@lth.gov.my, Website: www.tabunghaji.gov.my	$ 10,712,121	14th June 2007	
6. HTP/06	Mr Mohamad Nor Bin Haji Mat, IT Director. Ministry of International Trade & Industry (MITI), Block 10, Government Offices Complex, Street of Duta, 50622 Kuala Lumpur, Malaysia. Phone : (603) 62013167/ (603) 62034596, Fax : (603) 62033142, Email : mohamadnor@miti.gov.my, Website : www.miti.gov.my	$ 11,700,568	30th Sept 2006	

Name of contract	Purchaser, contact address/tel./fax	Value of outstanding Information System (current US$ equivalent)	Estimated completion date	Average monthly invoicing over last six months (US$/month)
7. HTP/07	Madam Hajah Nor'ini Bt Ab. Rahman, Deputy Director of Pension Department (Head of ICT) Public Service Department of Malaysia, Block C1 and C2, Parcel C, Federal Government Administration Center, 62100 Federal Territory Putrajaya, Malaysia. Phone : (603) 88854134, Fax : (603) 88885573, Email : Norini@jpa.gov.my, Website : www.jpa.gov.my	$ 10,451,859	30th Oct 2004	
8. HTP/08	Mr P.B. Abeykoon, Controller Immigration & Emigration Department of Immigration and Emigration, 41 Ananda Rajakaruna Mawatha, Colombo 10, Sri Lanka. Tel : (94) 11-5329000, Fax : (94) 11-5329401, Website : www.immigration.gov.lk	$ 4,883,403	11th Sept 2012	

Current Contract Commitments / Work in Progress

Name of Bidder or partner of a ~~Joint Venture~~ / Consortium: **Epic Lanka (Pvt.) Ltd.**

Bidders and each partner to an Joint Venture / Consortium bid should provide information on their current commitments on all contracts that have been awarded, or for which a letter of intent or acceptance has been received, or for contracts approaching completion, but for which an unqualified, full completion certificate has yet to be issued.

Name of contract	Purchaser, contact address/tel./fax	Value of outstanding Information System (current US$ equivalent)	Estimated completion date	Average monthly invoicing over last six months (US$/month)
1. EPIC/01 Establishment of Disaster Recovery Centre for Department of Immigration & Emigration of Sri Lanka	Mr P.B. Abeykoon, Controller General **Department of Immigration and Emigration, 41 Ananda Rajakaruna Mawatha, Colombo 10, Sri Lanka.** Tel : (94) 11-5329000, Fax : (94) 11-5329401, Website : www.immigration.gov.lk	$ 1,082,623.00	30th June 2008	

Name of contract	Purchaser, contact address/tel./fax	Value of outstanding Information System (current US$ equivalent)	Estimated completion date	Average monthly invoicing over last six months (US$/month)
2. EPIC/02 Supply of 3,000,000 Blank Travel Documents and Printing and Personalization System for Department of Immigration & Emigration, Sri Lanka	Mr P. B. Abeykoon, Controller General **Department of Immigration and Emigration, 41 Ananda Rajakaruna Mawatha, Colombo 10, Sri Lanka. Tel : (94) 11-5329000, Fax : (94) 11-5329401, Website :** www.immigration.gov.lk	$ 2,826,723.00	11th Sept 2012	
4. EPIC/04 Epic Dial a Bank Management System	Mr. Nisala Kodippli Senior Manager - IT Nation Trust Bank Ltd., No.76, York Street, Colombo 01. **Tel : (94) 11-4711456,** Fax : (94) **11-4313199,Website:** www.nationstrust.com	$ 190,909.00.00	30th July 2008	
5. EPIC/05 Expansion of existing High Security ID card printing System	Captain Pitawala Officer-in-charge – Card Center Sri Lanka Army, Headquarters, Colombo 03. Tel: 0772016739, Website: www.army.lk	$ 18,190.00	05th July 2008	

Name of contract	Purchaser, contact address/tel./fax	Value of outstanding Information System (current US$ equivalent)	Estimated completion date	Average monthly invoicing over last six months (US$/month)
6. Epic/06 Epic Signature Capturing Solution	Mr. Anusha Vidanapathirana Senior System Analyst Sampath Bank Ltd No.110, Sir James peiris Mawatha, Colombo 02. Tel:0773604286 Fax : (94)11-2303086,Website: www.sampah.lk	$ 17,030.00	30th July 2008	
7. EPIC/07 Dynamic Currency Converting System	Mr. Nazeem Mohamad, Country Manager Hong Kong & Shanghai Bank Corporation (HSBC), "Advantage" BildingComplex, 4th Floor,74ADharmapala Mw, Colombo 07. Tel : (94) 077385264, Fax : (94) 11-23722,Website: www.globalpaymentsinc.com	$ 13,640.00	14th June 2007	

Name of contract	Purchaser, contact address/tel./fax	Value of outstanding Information System (current US$ equivalent)	Estimated completion date	Average monthly invoicing over last six months (US$/month)
8. EPIC/08 Expansion project of existing ID card Center at Airport & Aviation Services of Sri Lanka	Mr. Dammika Wijesooriya, Head of Security Services Airport & Aviation Services of Sri Lanka Bandaranayake International Airport, Katunayaka. Tel : (94) 11-2251423, Fax : (94) 11-2255850,Website: www.cmb.aero.lk	$ 2,730.00	05th July 2008	

Current Contract Commitments / Work in Progress

Name of Bidder or partner of a ~~Joint Venture~~ /   Consortium: **OpSec Security, Inc.**

Bidders and each partner to an Joint Venture / Consortium bid should provide information on their current commitments on all contracts that have been awarded, or for which a letter of

intent or acceptance has been received, or for contracts approaching completion, but for which an unqualified, full completion certificate has yet to be issued.

Name of contract	Purchaser, contact address/tel./fax	Value of outstanding Information System (current US$ equivalent)	Estimated completion date	Average monthly invoicing over last six months (US$/month)
1 IFE voter ID	Digimarc 9405 SW Gemini Drive Beaverton, Oregon 97008 1-800 344-4627	None	8/30/08	$168,000
2.Rapids – US Military ID	USGPO 732 North Capital Street, NW Washington, DC 20401	None	12/2010	$175,000
3.National Police Identification Card	Ciccone Calcografica, SA Ruta Panamericana KM 25,500 (B1611 DFT) Don Torcuato BS AS Argentina	None	12/09	$55,000

4.Mexico Consular ID card	Mexican Consulate 111 S. Idenpendence Mall E 310 The Bourse Building Philadelphia, PA 19106	none	11/08	$110,000
5.				
Etc.				

Financial Capabilities

Name of Bidder or partner of a ~~Joint Venture~~ / Consortium : **HEITECH PADU BERHAD**

Bidders, including each partner of a Joint Venture / Consortium, shall provide financial information to demonstrate that they meet the requirements stated in the BDS. Each Bidder or partner of a Joint Venture / Consortium shall complete this form. If necessary, separate sheets shall be used to provide complete banker information. A copy of the audited balance sheets shall be attached.

Autonomous subdivisions of parent conglomerate businesses shall submit financial information related only to the particular activities of the subdivision.

Banker	Name of banker: RHB Bank Berhad	
	Address of banker: 47 & 49, Jalan USJ 10/1, UEP Subang Jaya, 47610 Subang Jaya, Selangor, Malaysia	
	Telephone: +603 5637 3592	Contact name and title: Mr. Addy Withrasa, Customer Sales Manager
	Fax: +603 5637 3941	Telex

Summarize actual assets and liabilities in U.S. dollar equivalent (at the rates of exchange current at the end of each year) for the previous five calendar years. Based upon known commitments, summarize projected assets and liabilities in U.S. dollar equivalent for the next two calendar years, unless the withholding of such information by stock market listed public companies can be substantiated by the Bidder.

Financial information in US$ equivalent	Actual: Previous five years					Projected: Next two years	
	5 2006	4 2005	3 2004	2 2003	1 2002	1 2007	2 2008
1. Total assets	87,384	70,648	84,278	73,956	83,694	96,122	105,735
2. Current assets	43,654	36,339	47,788	37,494	45,905	48,020	52,822
3. Total liabilities	31,911	15,592	30,523	20,642	33,086	35,102	38,613
4. Current liabilities	30,674	13,149	25,240	15,558	26,917	33,742	37,116

Financial information in US$ equivalent	Actual: Previous five years					Projected: Next two years	
	5 2006	4 2005	3 2004	2 2003	1 2002	1 2007	2 2008
5. Profits before taxes	4,452	4,603	4,613	7,972	10,951	4,898	5,387
6. Profits after taxes	2,853	3,459	3,038	5,311	7,602	3,139	3,453

Specify proposed sources of financing, such as liquid assets, unencumbered real assets, lines of credit, and other financial means, net of current commitments, available to meet the total construction cash flow demands of the subject contract or contracts as indicated in the BDS for ITB Clause 6.1 (a).

Source of financing	Amount (US$ equivalent)
1. RHB Bank Berhad	51,996,157.50
2. Bank Muamalat Malaysia Berhad	6,028,540.00
3. Public Bank Berhad	9,042,810.00
4. CIMB Bank Berhad	9,947,091.00

Attach audited financial statements—including, as a minimum, profit and loss account, balance sheet, and explanatory notes—for the period stated in the BDS for ITB Clause 6.1 (a) (for the individual Bidder or each partner of a Joint Venture).

If audits are not required by the laws of Bidders' countries of origin, partnerships and firms owned by individuals may submit their balance sheets certified by a registered accountant, and supported by copies of tax returns,

Financial Capabilities

Name of Bidder or partner of a Joint Venture / Consortium: **Epic Lanka (Pvt.) Ltd.**

Bidders, including each partner of a Joint Venture / Consortium, shall provide financial information to demonstrate that they meet the requirements stated in the BDS. Each Bidder or partner of a Joint Venture / Consortium shall complete this form. If necessary, separate sheets shall be used to provide complete banker information. A copy of the audited balance sheets shall be attached.

Autonomous subdivisions of parent conglomerate businesses shall submit financial information related only to the particular activities of the subdivision.

Banker	Name of banker: **Union Bank of Colombo Ltd.**	
	Address of banker: **P.O. Box 348, 15A, Alfred Place, Colombo 03, Sri Lanka.**	
	Telephone: **0094 114 525525** **0094 112 370870**	Contact name and title: **Mr. Mohan Paliyawadana** **Relationship Manager**
	Fax: **0094 114 525516**	Telex:

Summarize actual assets and liabilities in U.S. dollar equivalent (at the rates of exchange current at the end of each year) for the previous five calendar years. Based upon known commitments, summarize projected assets and liabilities in U.S. dollar equivalent for the next two calendar years, unless the withholding of such information by stock market listed public companies can be substantiated by the Bidder.

Financial information in US$ equivalent	Actual: '000 Previous five years					Projected: '000 Next two years	
	5 2003	4 2004	3 2005	2 2006	1 2007	1 2008	2 2009
1. Total assets	339	335	409	799	1,546	2,544	4,377
2. Current assets	195	215	296	543	1,322	1,983	2,974
3. Total liabilities	340	335	409	799	1,546	**3,093**	4,639
4. Current liabilities	114	112	151	446	774	967	1,451
5. Profits before taxes	75	26	73	181	416	1,040	2,601
6. Profits after taxes	69	12	35	99	271	676	1,691

Specify proposed sources of financing, such as liquid assets, unencumbered real assets, lines of credit, and other financial means, net of current commitments, available to meet the total construction cash flow demands of the subject contract or contracts as indicated in the BDS.

Source of financing	Amount (US$ equivalent)
1. **Nastions Trust Bank**	**500,000.00**
2.	
3.	
4.	

Attach audited financial statements—including, as a minimum, profit and loss account, balance sheet, and explanatory notes—for the period stated in the BDS (for the individual Bidder or each partner of a Joint Venture / Consortium).

If audits are not required by the laws of Bidders' countries of origin, partnerships and firms owned by individuals may submit their balance sheets certified by a registered accountant, and supported by copies of tax returns,

Financial Capabilities

Name of Bidder or partner of a ~~Joint Venture~~ / Consortium: **OpSec Security, Inc.**

Bidders, including each partner of a Joint Venture / Consortium, shall provide financial information to demonstrate that they meet the requirements stated in the BDS. Each Bidder or partner of a Joint Venture / Consortium shall complete this form. If necessary, separate sheets shall be used to provide complete banker information. A copy of the audited balance sheets shall be attached.

Autonomous subdivisions of parent conglomerate businesses shall submit financial information related only to the particular activities of the subdivision.

Banker	Name of banker Bank of America*	
	Address of banker 100 West 33rd Street, New York, NY 10001	
	* OpSec is in the process of transferring its banking relationship from Bank of America to Citizens Bank in the next 60 days.	
	Telephone (410) 547-4189	Contact name and title - Maureen Goff
	Fax (410) 637-8197	Telex

Summarize actual assets and liabilities in U.S. dollar equivalent (at the rates of exchange current at the end of each year) for the previous five calendar years. Based upon known commitments, summarize projected assets and liabilities in U.S. dollar equivalent for the next two calendar years, unless the withholding of such information by stock market listed public companies can be substantiated by the Bidder.

Financial information in US$ equivalent (*'000's omitted*)	Actual: Previous five years *Exchange Rate***										Projected: Next two years *see note below*	
	5	2007	4	2006	3	2005	2	2004	1	2003	1	2

Financial information in US$ equivalent (‘000’s omitted)	Actual: Previous five years *Exchange Rate***					Projected: Next two years **see note below*	
	5 2007	4 2006	3 2005	2 2004	1 2003	1	2
1. Total assets	$60,316	$47,884	$41,767	$55,397	$63,335		
2. Current assets	$20,531	$23,441	$18,502	$23,105	$24,269		
3. Total liabilities	$18,693	$8,815	$9,387	$12,251	$11,014		
4. Current liabilities	$16,047	$8,815	$9,347	$12,150	$10,804		
5. Profits before taxes	$9,313	$3,116	($9,049)	($2,754)	($34,873)		
6. Profits after taxes	$7,058	$3,188	($10,503)	($4,187)	($35,075)		

* Per London Stock Exchange regulations, we are precluded from providing projections on future financial results.

**Figures by year are OpSec pound sterling figures converted to US dollars at an average exchange rate of 1.8.

Specify proposed sources of financing, such as liquid assets, unencumbered real assets, lines of credit, and other financial means, net of current commitments, available to meet the total construction cash flow demands of the subject contract or contracts as indicated in the BDS.

Source of financing	Amount (US$ equivalent)
1. Term loan and revolving credit facility with the Royal Bank of Scotland plc *	$19,000,000
2.	
3.	
4.	

*Source: April 22, 2008 press release from OpSec Security Group plc (London AIM: OSG)

Attach audited financial statements—including, as a minimum, profit and loss account, balance sheet, and explanatory notes—for the period stated in the BDS (for the individual Bidder or each partner of a Joint Venture / Consortium).

If audits are not required by the laws of Bidders' countries of origin, partnerships and firms owned by individuals may submit their balance sheets certified by a registered accountant, and supported by copies of tax returns,

Bill of Material and Related Services

Notes:

a. Bidders must provide a detailed list of equipment and services that are included and provided in this tender using the format given below.

    a. Column A : Evaluation Lot number under which the equipment are proposed and provided.

    b. Column B: Site at which the equipment will be installed (e.g. RPD head office, DS offices etc.).

    c. Column C: A brief description of the item.

    d. Column D: Quantity (number of units) of the item.

    e. Column E: reference to a separate sheet / manufactures' broachers having the requested technical data.

b. The Bill of Material at minimum should include all the equipment of the categories listed below. Technical documents referred through Column E should also contain the minimum technical data specified for each category.

    a. **All servers, workstations, storage devices and accessories (including imaging and printing devices)** : Technical details should include, brand/model and manufacturer, processor type and speed, FSB speed, system board and chipset data, memory type/capacity and speed, network adapter data, expansion bus details, bios and system management data, removable storage devices and capacities, internal secondary storage devices and capacities, redundancy and fault tolerance details, system power supply details, supported standards and certifications.

    b. **All active network devices (inclusive of network security devices)**: Technical specifications should include Technical details should include, brand/model and manufacturer, number of ports and speeds, protocols supported, expansion options, system and remote management features, fault tolerance and failover features, supported standards and certifications.

    c. **All UPS, power conditioning and backup power sources**: Technical details should include, brand/model and manufacturer, electrical parameters (input / output), fault tolerance and fail over settings, supported standards and certifications.

    d. **All Standard software**: Technical details should include, vendor, software versions, licensing and upgrade options, localization support, operating support details.

e. **All f urniture**: T echnical de tails s hould i nclude, br and/model a nd manufacturer, di mensions w ith t echnical dr awings, m aterial us ed f or construction / finishers etc.

Column A	Column B	Column C	Column D	Column E
Lot #	Site / Location	Description	Quantity	Ref. to specifications
Lot 1	RPD HO	JADE & Taipan	1	Section 3/ 10
Lot 1	RPD HO	IBM AIX Version 5.1	2	Section 3/ 10
Lot 1	RPD HO	IBM Director 5.10 Server Management Tool	1	Section 3/ 10
Lot 1	RPD HO	IBM Tivoli Storage Manager	1	Section 3/ 10
Lot 1	RPD HO	IBM High Availability Cluster Processing	1	Section 3/ 10
Lot 1	RPD HO	IBM Websphere Version 6	1	Section 3/ 10
Lot 1	RPD HO	IBM DB2 Version 9 RDBMS	1	Section 3/ 10
Lot 1	RPD HO	Eclipse Development Tool	1	Section 3/ 10
Lot 1	RPD HO	Microsoft Windows 2003 Standard Edition	43	Section 3/ 10
Lot 1	RPD HO	NEC Fingerprint Management System for Automated Fingerprint Identification System (AFIS)	1	Section 3/ 10
Lot 1	RPD HO	NEC SPID Software Development Kit	1	Section 3/ 10
Lot 1	RPD HO	Microsoft Windows XP/ Vista	70	Section 3/ 10
Lot 1, 3 & 4	RPD HO/ DS	Microsoft Windows XP/ Vista	654	Section 3/ 10

Section 8: (Bidding Forms)

Column A	Column B	Column C	Column D	Column E
Lot #	Site / Location	Description	Quantity	Ref. to specifications
Lot 1	RPD HO	eSecureData Security Software	1	Section 3/ 10
Lot 2	RPD HO	Firewall - Amaranten F600pro	2	Section 3/ 10
Lot 2	RPD HO	IPS appliance - ISS Proventia GX5108	1	Section 3/ 10
Lot 2	RPD HO	Antivirus Solution - Server and Workstations - TrendMicro Enterprise OfficeScan	1	Section 3/ 10
Lot 2	RPD HO	Interscan Web Security Appliance - Extended Edition - TrendMicro IWSA	1	Section 3/ 10
Lot 2	RPD HO	IBM x3550 Servers	90	Section 3/ 10
Lot 2 & 3	RPD HO/ DS	Panora Desktop PC	702	Section 3/ 10
Lot 2	RPD HO	Compaq 6170 Notebook	10	Section 3/ 10
Lot 2	RPD HO	Lexmark E120N Laser Printer	321	Section 3/ 10
Lot 2	RPD HO	Canon ImageRunner 3025 Heavy Duty Digital	5	Section 3/ 10
Lot 2	RPD HO	Canon 255101 Digital Color Copier	1	Section 3/ 10
Lot 2	RPD HO	Epson DT 20000 Heavy Duty Scanner A3	5	Section 3/ 10
Lot 2	RPD HO	PowerWare 9390 UPS 60KVA	1	Section 3/ 10

Section 8: (Bidding Forms)

Column A	Column B	Column C	Column D	Column E
Lot #	Site / Location	Description	Quantity	Ref. to specifications
Lot 2	RPD HO	ESE 2000 Lightning Arrestor	1	Section 3/ 10
Lot 2	RPD HO	P100 FG Wilson 100kVA	1	Section 3/ 10
Lot 2	RPD HO	CCTV Dome Type	1	Section 3/ 10
Lot 2	RPD HO	60,000 BTU Air Cond	3	Section 3/ 10
				Section 3/ 10
Lot 3	DS	Canon Scan LITE 25	321	Section 3/ 10
Lot 3	DS	Canon PowerShot A650IS	321	Section 3/ 10
Lot 3	DS	Cross Match LScan 100R	321	Section 3/ 10
Lot 3	DS	Defender UPS 3KVA	321	Section 3/ 10
Lot 3	DS	IP Camera	321	Section 3/ 10
Lot 3	DS	Furniture – Workstation, Chair, Document Cabinet	321 sets	Section 3/ 10
Lot 4	Mobile	Ashok Leyland Viking 52 High back Seat Bus	1	Section 3/ 10
Lot 4	Mobile	Ashok Leyland VE637GRMSH	2	Section 3/ 10
Lot 4	Mobile	Personal Computers	6	Section 3/ 10
Lot 4	Mobile	Fingerprint scanner, laser printer, digital camera	6 set	Section 3/ 10
Lot 5	RPD HO	Cisco Router	1	Section 3/ 10
Lot 5	RPD HO	Production Control PC - Lenovo PC (or similar) 2GB DRAM	1	Section 3/ 10

Section 8: (Bidding Forms)

Column A	Column B	Column C	Column D	Column E
Lot #	Site / Location	Description	Quantity	Ref. to specifications
		400GB Disk Storage (OS + temp) 2x500GB disk Storage (data) CD/DVD RW 208-240VAC 50Hz		
Lot 5	RPD HO	LCD Monitor - 19" (1400x900 resolution) 208-240VAC 50Hz	1	Section 3/ 10
Lot 5	RPD HO	USB Barcode reader	1	Section 3/ 10
Lot 5	RPD HO	Laser Printer - HP 208-240VAC 50Hz	1	Section 3/ 10
Lot 5	RPD HO	Label Printer	1	Section 3/ 10
Lot 5	RPD HO	Personalization Printer - HP Indigo S2000 208-240VAC 50 Hz	1	Section 3/ 10
Lot 5	RPD HO	Laminator - AutoFeeds 208-240VAC 50 Hz	1	Section 3/ 10
Lot 5	RPD HO	Die Cutter - AutoFeeds 208-240VAC 50Hz	1	Section 3/ 10
Lot 5	RPD HO	Card Inspection System - Euclid AIS 208-240VAC 50 Hz	2	Section 3/ 10
Lot 5	Backup Card Plant/ Bataramulla	Cisco Router	1	Section 3/ 10
Lot 5	Backup Card Plant/ Bataramulla	Production Control PC - Lenovo PC (or similar) 2GB DRAM	1	Section 3/ 10

Section 8: (Bidding Forms)

Column A	Column B	Column C	Column D	Column E
Lot #	Site / Location	Description	Quantity	Ref. to specifications
		400GB Disk Storage (OS + temp) 2x500GB disk Storage (data) CD/DVD RW 208-240VAC 50Hz		
Lot 5	Backup Card Plant/ Bataramulla	LCD Monitor - 19" (1400x900 resolution) 208-240VAC 50Hz	1	Section 3/ 10
Lot 5	Backup Card Plant/ Bataramulla	USB Barcode reader - USB-Powered	1	Section 3/ 10
Lot 5	Backup Card Plant/ Bataramulla	Laser Printer - HP 208-240VAC 50Hz	1	Section 3/ 10
Lot 5	Backup Card Plant/ Bataramulla	Label Printer	1	Section 3/ 10
Lot 5	Backup Card Plant/ Bataramulla	Personalization Printer	1	Section 3/ 10
Lot 5	Backup Card Plant/ Bataramulla	Laminator – AutoFeeds - HP Indigo S2000 208-240VAC 50 Hz	1	Section 3/ 10
Lot 5	Backup Card Plant/ Bataramulla	Die Cutter - AutoFeeds 208-240VAC 50Hz	1	Section 3/ 10
Lot 5	Backup Card Plant/ Bataramulla	Card Inspection System - Euclid AIS 208-240VAC 50 Hz	2	Section 3/ 10

Section 8: (Bidding Forms)

Software List

Software Item	(select one per item)			(select one per item)	
	System Software	General-Purpose Software	Application Software	Standard Software	Custom Software
JADE & TAIPAN					√
IBM AIX Version 5.1				√	
IBM Director 5.10 Server Management Tool				√	
IBM Tivoli Storage Manager				√	

Section 8: (Bidding Forms)

Software Item	(select one per item)			(select one per item)	
	System Software	General-Purpose Software	Application Software	Standard Software	Custom Software
IBM High Availability Cluster Processing				√	
IBM Websphere Version 6				√	
IBM DB2 Version 9 RDBMS				√	
Eclipse Development Tool				√	
Microsoft Windows 2003 Standard Edition				√	
NEC Fingerprint Management System for Automated Fingerprint Identification System (AFIS)				√	
NEC SPID Software Development Kit				√	
Microsoft Windows XP/ Vista				√	
Microsoft Windows XP/ Vista				√	
eSecureData Security Software				√	

Section 8: (Bidding Forms)

Software Item	(select one per item)			(select one per item)	
	System Software	General-Purpose Software	Application Software	Standard Software	Custom Software
HP Yours Truly Designer			√		
HP Indigo Press SW			√		
eSecureData Security Software				√	
Firewall - Amaranten F600pro				√	
IPS appliance - ISS Proventia GX5108				√	
Antivirus Solution - Server and Workstations - TrendMicro Enterprise OfficeScan				√	
Interscan Web Security Appliance - Extended Edition - TrendMicro IWSA				√	

Technical Compliance Response Schedule

<u>Instructions to Bidder's in responding to technical requirements of the tender.</u>

1. Bidders are advised t o c arefully read and s trictly f ollow t he i nstructions g iven below i n pr oviding t heir r esponses t o t he t echnical r equirements of t his t ender. Any deviation from the instructions given below may cause the Bid to be rejected.

2. Bidder MUST use the "Technical Compliance Response Schedule" as the primary document i n pr oviding t heir r esponses t o t he t echnical r equirements s tipulated under "Schedule of Technical Requirements". Use of any other format to provide responses to technical requirements will cause the Bid to be rejected.

3. The "Technical Compliance Response Schedule" consist of six columns named as 'Column A' up t o Column 'F'. T he first three columns (Column A, Column B and Column C) provide the following information to the bidders.

    a. **Column A (Requirement N umber):** provides t he r eference t o t he requirement specified in the "Schedule of Technical Requirements".

    b. **Column B (Evaluation Lot Number):** provide the Evaluation Lot under which t he r equirement be e valuated i n t he c riteria s tipulated unde r t he "Evaluation Criteria" in S ection III of thi s docum ent (Note: E valuation Lot num ber i s a pplicable onl y for r equirements t hat a re ev aluated as "Group R" or "Group AR" requirements).

    c. **Column C (Evaluation G roup):** provide t he E valuation G roup t ype under which the r equirement be e valuated i n the criteria stipulated under the "Evaluation Criteria" in Section III of this document.

    Bidders should consider above as "<u>READ ONLY</u>" information and <u>MUST NOT</u> make any changes to information contained in these columns. M aking any type of modifications to these data will result the Bid to be rejected.

4. Bidder m ust p rovide t heir r esponse t o t he requirement r eferred i n C olumn A , using the last three columns as follows:

    a. **Column D (Bidder's Response):** Bidder indicate either 'Yes' or 'No' as follows

    YES: If the bidder declares that the requirement is "FULLY" complied by the response provide by the Bidder.

NO : If the bidder declares that the requirement is either "PARTIALLY" complied or "NOT" complied by the response provide by the Bidder.

b. **Column E (Technical D escription):**   The Bidder m ust pr ovide a technical d escription on how t he requirement will be c omplied by th e Bidder's proposed technical solution. The description may include but not restricted to the following.

- Technical diagrams, drawing of the proposed solution

- Details of software / hardware technologies to be used inclusive of relevant algorithms, flowcharts etc.

- Detailed technical s pecifications o f ha rdware components (inclusive of br and na mes, c ountries of or igin, pe rformance indicators etc.)

The information provided in this column should provide sufficient details for the Purchaser to determine and verify the compliance of the Bidder's response to the related technical requirement. (Note: For long descriptions Bidders m ay p rovide t he t echnical de tails i n a separate l ocation of t he document and refer to such through a properly numbered reference from this column).

c. **Column F (References to supporting document):** Bidder may provide further r eferences t o a ny supporting doc ument (e.g. B idder's t echnical proposal, manufacturer's original broachers, certified test results / reports, technical / user manuals etc.) that are included in the Bidding document. The bidder should maintain appropriate indexing mechanism such that the Purchaser could refer to these documents easily.

5. The Bidders must not add or delete any row(s) from the "Technical Compliance Response Schedule". Any such modification will result the Bid to be rejected.

#	Column A	Column B	Column C	Column D	Column E	Column F
	Requirement number	Evaluation Lot number	Evaluation Group	Bidder's response (Yes / No)	Technical description	Ref. to support documents
1.	GR 1.1	Lot 7	AR	Yes	Proposed Project Team, roles and responsibilities of team members, and staffs capabilities (CV) are stated in this sections.	Please Refer to Section 6: Project organization Structure
2.	GR 1.2		A	Yes	The capabilities of all HeiTech's key personnel with vast knowledge and experienced in their field of work, that meet the criteria of customer requirement	Please Refer to Section 6: Project organization Structure
3.	GR 1.3	Lot 7	AR	Yes	The estimated time line that has been stated in Project Plan will be 14 month(s), the project plan is consist of the timeline and deliverables for the e-NIC project, and it consists of initial phase, hardware & software, analysis and phase design, system development project, system test, system training, installation, and moile system implementation	Please Refer to Project Timeline in Section 9: Annexure
4.	GR 1.4		A	Yes	Active component Warranty 3 yrs + 4 on site post warranty	Please refer to Section 5: Implementation Approach.
5.	GR 1.5		A	Yes	Passive components 7 years warranty	Please refer to Section 5: Implementation Approach.
6.	GR 1.6		A	Yes	Financial – Audited balance sheet for 3 years. Provided.	Please Refer to Project Timeline in Section 9: Annexure
7.	GR 1.7		A	Yes	Non – Performance of Contracts; 5 years	

#	Column A	Column B	Column C	Column D	Column E	Column F
	Requirement number	Evaluation Lot number	Evaluation Group	Bidder's response (Yes / No)	Technical description	Ref. to support documents
8.	SR 1.1		A	Yes	Language Support (English, Sinhala, tamil) – all vendor system	
9.	SR 1.2		A	Yes	Dates support (all vendor system).System are compliant with ISO 9000 with regards to date/time. The ISO 9000 family of standards represents an international consensus on good quality management practices. It consists of standards and guidelines relating to quality management systems and related supporting standards.	Please refer to section 4: Project Approach and Methodology
10.	SR 1.3		A	Yes	Electrical Power: Equipment is standard include power plugs (with proper ground terminal) standard in Sri Lanka.	
11.	SR 1.4		A	Yes	Its complied to the requirement of equipment that works in 15-34 degrees centigrade of temperature.	
12.	SR 1.5		A	Yes	US FCC class B or EN 55022 and EN 50082-1 or equivalent, emission standards.	
13.	SR 1.6		A	Yes	Our proposed e-NIC software should be loyalty free and licensed to the Department of Registrations of Persons, Democratic Socialist Republic of Sri Lanka on a perpetual basis and should be valid	

#	Column A	Column B	Column C	Column D	Column E	Column F
	Requirement number	Evaluation Lot number	Evaluation Group	Bidder's response (Yes / No)	Technical description	Ref. to support documents
14.	SR 1.7		A	Yes	The D epartment of R egistration of Persons s hall hav e t he s ole I ntellectual Property Rights ownership to the Custom Software or el ements t hereof, i ncluding customizations specific to the Department of Registration of Persons. We will deliver to t he D epartment of R egistration of Persons an inventory of the said Custom Software t ogether w ith al l r elated documentation, i ncluding but not l imited to S ource Code, d ata di ctionaries, al l relevant diagrams (i.e. ER diagram, class diagram, s equence di agram depl oyment diagram etc), with all the rights to use the Source C ode by t he D epartment of Registration of Persons at the end of the warranty per iod. T he D epartment of Registration of P ersons, s hall hav e t he right to r eplicate t he Custom Software i n all of fices of D epartment of Registration of Persons during the contract period and thereafter. Department of Registration of Persons s hall al so hav e r ights t o f urther develop t his c ategory of Software, a t t he end of warranty period.	
15.	SR 1.8		A	Yes	A complete set of source code / scripts developed for the e-NIC application (custom software) will be provided to the purchaser at the end of warranty period.	
16.	SR 1.9		A	Yes	Comply, Letter on complying to NDA requirement is provided.	
17.	SR 2.1	Lot 1	R	Yes	Appropriate tools are provided to administer, monitor and troubleshoot various software, hardware and communication systems.	

#	Column A	Column B	Column C	Column D	Column E	Column F
	Requirement number	Evaluation Lot number	Evaluation Group	Bidder's response (Yes / No)	Technical description	Ref. to support documents
18.	SR 2.2	Lot 1	R	Yes	The system will protected unauthorized access, use, disclose, destruction, modification or disruption. The Security Model integrate with the work flow model of the eNIC System where it will work as an intelligent security management system.	
19.	SR 2.3	Lot 1	R	Yes	Traning plan: Core Team For business points and branch support, the consultant will train and educate a selected team of the end-users as Trainers for first level support. This approach has proven successful in mostly all our previous project implementation. The "Train the Trainer" education system will be implemented for the core group of system trainers called the "Core Team".	Please Refer to Section 4: Project Approach & Methodology
20.	SR 2.4	Lot 1	AR	Yes	As required in the tender document, HeiTech shall provide three (3) years warranty on system application from the date of e-NIC system user acceptance. This will follows with commence of the support and maintenance of the system for a period of four (4) years, upon expiry of the warranty.	Please refer to Section 5 : Project Implementation Plan
21.	SR 2.5		A	Yes	. End- User documents will be provided in following formats / mediums: • One (1) paper based copy per site / location • One (1) copy in '.pdf' format on CD / DVD • One (1) c opy as an e ditable document (in ' .DOC' or ' ODF' format) on CD / DVD	Please refer to Section 5 : Project Implementation Plan

#	Column A	Column B	Column C	Column D	Column E	Column F
	Requirement number	Evaluation Lot number	Evaluation Group	Bidder's response (Yes / No)	Technical description	Ref. to support documents
					End U ser doc uments will be i n English, Sinhala and Tamil	
22.	SR 2.6	Lot 1	AR	Yes	The f ollowing doc ument s hould be handed ov er to IT user for technical user training, c onsist of pr e-requisite, objective, and doc ument t hat relates t o the system. § Functional Specification § Installation Test § Configuration Test § User Acceptance Test § Provisional A cceptance T est (For government-related projects) § Final Acceptance Test § Change Request	Please refer to Section 5 : Project Implementation Plan
23.	SR 2.7		A	Yes	The following document should be handed over to user for user training, consist of pre-requisite, objective, and document that relates to the system	Please Refer to Section 4: Project Approach & Methodology
24.	SR 2.8	Lot 7	AR	Yes	The implementation of this solution proposed is expected to take about 14 months from the point of initiation or kick-off. It will go through several major phases or stages as follows in a typical product lifecycle: § Requirements and Design Definition § Development and Implementation § Pilot	Please Refer to Section 4: Project Approach & Methodology, Section 5: Project Implementation Plan and Section 9 : Annexure

#	Column A	Column B	Column C	Column D	Column E	Column F
	Requirement number	Evaluation Lot number	Evaluation Group	Bidder's response (Yes / No)	Technical description	Ref. to support documents
					We complete the complete project timeline to RPD, that consists the following : • Project O rganization an d Management Plan; • Delivery and Installation Plan • Training Plan • Pre-commissioning and Operational A cceptance Testing Plan • Warranty Service Plan • Task, T ime, and R esource Schedules • Post-Warranty Service Plan • Technical Support Plan	
25.	SR 2.9		A	Yes	A doc ument repository i s w here al l softcopies of doc ument pe rtaining t o t he project is kept. When a project has be en awarded to the Bidder, the Account Manager shall create a doc ument r epository f older f or t he Project i n t he c ustomer f older. T his i s done by copying the blank template folder and i ts s ubfolders t o a new f older and renamed to the Project Name.	Please Refer to Section 5: Project Implementation Plan
26.	SR 3.1		A	Yes	Migration will be provided if applicable.	
27.	SR 4.1	Lot 1	R	Yes	Architectural Principle has been covered in detail in the proposed solution	Please refer to Section 3: Proposed Solution

#	Column A	Column B	Column C	Column D	Column E	Column F
	Requirement number	Evaluation Lot number	Evaluation Group	Bidder's response (Yes / No)	Technical description	Ref. to support documents
28.	SR 4.2	Lot 1	R	Yes	Architectural Qualities has been covered in detail in the proposed solution	Please refer to Section 3: Proposed Solution
29.	SR 4.3	Lot 1	AR	Yes	System documentation are provided as per list reflected.	Please refer to Section 5: Project Implementation Plan
30.	SR 5.1	Lot 7	AR	Yes	Preliminary Project Plan has been provided accordingly	Please refer to Annexure 8
31.	SR 5.2	Lot 2	AR	Yes	Proposed Project Team, roles and responsibilities of team members, and staffs capabilities (CV) are stated in this sections.	Please Refer to Section 6: Project organization Structure
32.	SR 5.3		A	Yes	Inspection will be carried out at a location designated by RPD	
33.	SR 5.4		A	Yes	The testing types are the Functional Testing, User Interface Testing (usability), Security and Access Control Testing and Performance testing (if critical for a system)	Please Refer to Section 4: Project Approach & Methodology
34.	SR 5.5		A	Yes	• Functional Testing - focus on any requirements for test that can be traced directly to business functions and business rules. • User Interface Testing – verifies a user's interaction with the software. The goal of UI testing is to ensure that the User Interface provides the user with the appropriate access and navigation through the functions of the target-of-test. • Security and Access Control Testing	Please Refer to Section 4: Project Approach & Methodology

Private & Confidential

#	Column A	Column B	Column C	Column D	Column E	Column F
	Requirement number	Evaluation Lot number	Evaluation Group	Bidder's response (Yes / No)	Technical description	Ref. to support documents
					– focus on the application-level security and system-level security. Application-level security, including access to the data or business functions. System-level security, including logging into or remote access to the system. • Performance Testing – focus on the response time requirement of the system, when the system is concurrently accessed by a number of users.	
35.	BR 1.1	Lot 1	AR	Yes	The applicant will complete the application form (Form 'Process B - Format A') and hands over to the RPD Officer @ DS together with the relevant documents and then make payment. RPD Officer @ DS will review the application and documentation. If the application is accepted, the data will be entered into the system such as name, address, date of birth and as sign the Temporary Number. This system will scan the relevant documents and attached to the Temporary Number assigned. Details of the relevant Certifying Officer are also entered into the system. If the application is rejected, it will return to the applicant or handed over to HO for investigation. This system will capture the photograph and thumb impression of the applicant then printout and hand over to the applicant to review and confirm the details. If not ok, the applicant can request the RPD Officer @DS to make corrections. If ok, the applicant will verify and sign the form. The applicant is requested to obtain the certification from an Authorized Certifying Officer and hand over back to the Authorized Certifying Officer, and then he will verify the information on the form. Certifying Officer will accept the form and	

#	Column A	Column B	Column C	Column D	Column E	Column F
	Requirement number	Evaluation Lot number	Evaluation Group	Bidder's response (Yes / No)	Technical description	Ref. to support documents
					give t he s igned r eceipt to t he applicant confirming ac ceptance o f f orms a nd al l indicated Original Documents. Please r efer t o s ection 3. 3.1.1-B f or diagram.	
36.	BR 1.2	Lot 1	AR	Yes	Mobile uni t i s t o r egister t hose w ithout permanent ad dress and/ or birth certificate. T he dat e of b irth i s ag reed based on the information gi ven. The GN will c ertify t he ad dress o r probable address to put on t he ID Card. Then the application w ill handed ov er t o RPD Officer to certify the application. If t he s ystem i s c urrently of fline, t he relevant information will locally store. The daily dat a f rom eac h mac hine w ill encrypted and put i nto pr escribed medi a and sent to the RPD Head Office. A note will be gener ated giving the details of the information being sent. The DS Office will be abl e t o regenerate a day's dat a and the data are available for 6 months on the local machine. Please r efer t o s ection 3. 3.1.1-A and 3.3.1.1-B for diagram.	
37.	BR 1.3	Lot 1	R	Yes	If t he s ystem i s c urrently of fline, t he relevant information will locally store. The daily dat a f rom eac h mac hine w ill encrypted and put i nto pr escribed medi a and sent to the RPD Head Office. A note will be gener ated gi ving det ails of t he information being sent. The DS Office will be abl e t o regenerate a day 's dat a and the data are available for 6 months on the local machine. Please r efer t o s ection 3. 3.1.1-B f or diagram.	

#	Column A	Column B	Column C	Column D	Column E	Column F
	Requirement number	Evaluation Lot number	Evaluation Group	Bidder's response (Yes / No)	Technical description	Ref. to support documents
38.	BR 1.4	Lot 1	R	Yes	A mont h b efore r eaching t he ag e of eligibility (15th year bi rthday) f or registration t he dat a (full name, bi rth certificate no. , r egistrar de tails, permanent address) will be captured onto the system @RPD. The salient details will be stored in the RPD system Monthly lists (by D S and G N) an d p rovided to t he respective G rama N iladhari. G N w ill follow-up on those eligible c itizens's t o submit the appl ications. F or mobile uni ts or unc onnected D S offices, t his s ystem provides encrypted data on media. Please r efer t o s ection 3. 3.1.1 f or diagram.	
39.	BR 2.1	Lot 1	AR	Yes	Please r efer t o s ection 3. 3.1.1-B f or details and diagram.	
40.	BR 2.2	Lot 1	AR	Yes	This s olution pr ovides an al arm f unction which w ill notify al l S enior O fficers when the R PD O fficer does no t ac knowledge the r eceipt of t he c ards w ithin t he predefined timeframe. T he status of the cards w ill be c hanged t o "Suspended Status".	
41.	BR 2.3	Lot 1	AR	Yes	Investigations w ill be done by t he Relevant Senior Officer. T he outcome of the i nvestigation w ill be updat ed i n t he system based on t he notification done by the s ystem. B ased on t he r esponse, i f the C ommissioner of R PD h as f urther queries, t he i nvestigation w ill b e done again. If there are no further queries, the Commissioner w ill updat e t he query status t o "Completed". T he appl ication status w ill c hanged f rom "Suspended Status" t o "Active" or "Cancelled". T he Commissioner w ill hav e t he authority t o change t he s tatus of t he C ard. T he	

#	Column A	Column B	Column C	Column D	Column E	Column F
	Requirement number	Evaluation Lot number	Evaluation Group	Bidder's response (Yes / No)	Technical description	Ref. to support documents
					changes w ill be r ecorded f or t racking purposes. I f t he C ards are c ancelled, new cards will be prepared. Please refer to section 3.3.2.1-B for diagram.	
42.	BR 2.4	Lot 1	AR	Yes	All the Cards will be stacked in a secured manner based on GN Division order. The system allows the RPD officer to check in the system based on the "Approved Receipt" handed from the applicant. If the system shows that the ID Card is received, the card will be retrieved by the "Unique DS-List Number" displayed in the system. The applicant is required to verify the information on the ID card and the thumb impression. If any of the verification fail, applicant are required to complain through a Special Report. The system is able to record incorrect details. A complaint number will be generated by the system. Please refer to section 3.3.2.1-C for more details and diagram.	
43.	BR 2.5	Lot 1	AR	Yes	The des truction of ol d applications i s done on a monthly basis. The system will generate a monthly reporting on the list to be des troyed. B esides m onthly r eport, the s ystem also allows users to generate report bas ed on s pecific dat e or a scheduled v isit of a r esponsible of ficer visiting t he D S. T he r eport w ill l ist t he Receipt Number, Date and Name. Based on t he r eport, t he ha rdcopy appl ications are r etrieved and p repared f or destruction. O nce t he report and hardcopy a pplications hav e been reviewed and s igned, t he O fficer at t he DS w ill des troy t he appl ications. T he authorized of ficer w ill c ertify t he destruction by s igning t he c ertificate of destruction and update the system on the status. T he report will be gener ated and emailed to the head of the department for	

#	Column A	Column B	Column C	Column D	Column E	Column F
	Requirement number	Evaluation Lot number	Evaluation Group	Bidder's response (Yes / No)	Technical description	Ref. to support documents
					monitoring purposes especially on the 'NOT RETRIEVABLE' and pending application that have exceeded more than 45 days. Report will be listing the Receipt Number, Date, Name and Address. Please refer to section 3. 3.2.1-D for diagram.	
44.	BR 2.6	Lot 1	AR	Yes	This module is intended to verify all cards listed are received by the Certifying Officer(CO). A Summary Dispatch List(SDL) is generated listing the CO Name, ID, Date, Card Number and Name. This SDL will be handed over to the CO together with the IDC ards for verification. If all of the cards are received, the CO are required to sign the SDL and hand it over to RPD. If any shortage of the card is detected, the CO will update the SDL indicating on the shortage. Upon receiving the SDL, RPD will update the system confirming the cards have been handed over to the CO. Please refer to section 3. 3.2.1-E for diagram.	
45.	BR 2.7	Lot 1	AR	Yes	The applicant is required to verify the information on the ID card. If any of the verification fail, applicant are required to fill in and sign the Acceptance Form and hand it over to the Certifying Officer(CO). If there are no discrepancies, the card is handover to the applicant. When the cards have been issued, the Acceptance Form and the SDL will be posted to the RPD together with unaccepted cards, if any. Upon receiving the SDL, the officer will update the system to "Valid" status. The system is able to generate a report listing the details of "Validated" cards for selected division on a monthly basis.	

#	Column A	Column B	Column C	Column D	Column E	Column F
	Requirement number	Evaluation Lot number	Evaluation Group	Bidder's response (Yes / No)	Technical description	Ref. to support documents
					Please r efer t o s ection 3. 3.2.1-F f or diagram.	
46.	BR 2.8	Lot 1	AR	Yes	The purpose of this mod ule is to p rocess changes of address or mar ital s tatus. The changed information is g enerated by the e -DS o r e -Citizens s ystem w hereby the s ystem w ill be updat ed w ith t he Pending Change. W hen the citizen visits the DS office, details of the citizen will be entered i nto the s ystem. T hen, the RPD will print the application and han d it to the citizen t o af fix s tamp/make pay ment and sign it. Please r efer t o s ection 3. 3.2.2 f or more details and diagram.	
47.	BR 2.9	Lot 1	AR	Yes	Applicants hav e t o v isit D S t o do t he renewal pr ocess. A t the DS, appl icants have t of ill i n and s ign t he renewal application f orm. O nce c ompleted, t he form s hould be han ded b ack to the RPD officer. R PD o fficer w ill v erify th e signature on the application form ag ainst the s ignature i n t he s ystem. I f t he signature does not match, the appl icants have to personally visit or provide a l etter of aut hority. T he R PD w ill updat e t he system f or any ne w i nformation, a ttach the phot ograph a nd f ingerprint. T he system w ill updat e t he modi fied e xpiry date. RPD officer will collect the card and issue a "Temporary Receipt – Renewal". Please r efer t o s ection 3. 3.2.3 f or diagram.	
48.	BR 3.1	Lot 1	AR	Yes	Any per son (card h older o r 3 rd party) informing ov er t he t elephone w ill be transferred t o the C all Handling U nit. System will captured the details (identity, how f ound a nd me thod of r eturning) o f	

#	Column A	Column B	Column C	Column D	Column E	Column F
	Requirement number	Evaluation Lot number	Evaluation Group	Bidder's response (Yes / No)	Technical description	Ref. to support documents
					lost card and card flagged as "Informed Lost". System will clarify the caller identity by cross checking the informant's data. System also can recall based on callers ID number or ID card information and history. If informant is the Card Holder, he is informed to report the lost card at DS office (with 'Instruction sheet' issued at the time of issuing the card) and obtain a 'Temporary Acknowledgement of Reporting Lost Card' (Date, ID Card number, Name, Address, Validity Period). If informant is a 3rd party, he is informed to return the card to the RPD office or closest DS. Please refer to section 3.3.3.1 for more details.	
49.	BR 3.2	Lot 1	AR	Yes	Please refer to section 3.3.3.1-B for details.	
50.	BR 3.3	Lot 1	AR	Yes	Please refer to section 3.3.3.1-C for details.	
51.	BR 3.4	Lot 1	AR	Yes	The details will be entered onto the system. The system will check whether the loss has been reported. For loss reported cards, system will generate a "Lost Card Transfer Note" and return to the Lost Card Issuing Office. System will capture location and card number being held and system will generate the found reference number. The card status will be changed to "In Transit". Issuing Office records receipt of cards and marks card status as "Received @ issuing office". The "Lost Card Receiving Offices" will review weekly of loss "In Transit" status cards with "Lost Card Issuing Office". If new cards has been issued or replaced,	

#	Column A	Column B	Column C	Column D	Column E	Column F
	Requirement number	Evaluation Lot number	Evaluation Group	Bidder's response (Yes / No)	Technical description	Ref. to support documents
					card status will be changed to "Invalid". Please refer to section 3. 3.3.1-D for diagram.	
52.	BR 3.4-a	Lot 1	AR	Yes	10 days prior to the expiry date of "temporary Receipt". System will generate a letter requesting card holder to collect and make payment for new card from respective DS office. The letter includes name, address, date, ID Card Number and which DS office. On acceptance the receipt at the Officer @DS, the card status will be changed to "Issued New Card". Please refer to section 3. 3.3.1-E for diagram.	
53.	BR 3.5	Lot 1	R	Yes	On receipt of information on the death of person based on e-Population application the information will be updated on the system @RP D. If e-Population is not available, await for the arrival of a relevant card at a registered office. The system will record the card status as "INVALID-DECEASED". System will generate letter to next of kin (per e-Population system) stating that the card has been invalidated and to return the card to the closest registered office. Letter will also contain the deceased NIC number, name and address. Please refer to section 3. 3.3.2-A for diagram.	
54.	BR 3.6	Lot 1	AR	Yes	If the office doesn't have online connectivity, the card will be accepted by an officer at the Registered Office and a receipt contains date, DS Office card id, name, or be posted is prepared and handed over to the person handing the card. The card will physically invalidated and attach with copy of the receipt and	

#	Column A	Column B	Column C	Column D	Column E	Column F
	Requirement number	Evaluation Lot number	Evaluation Group	Bidder's response (Yes / No)	Technical description	Ref. to support documents
					sent to the RPD Office. If the office has an online connectivity and on receipt of the card (card number, ID of person handling over card) at RPD office, the system will update confirming the return of the card and the status of the card will be modified to "INVALID". An acknowledgement will be prepared and either handed over to the person who handing the card or sent to the Postal Division for posting. Please refer to section 3.3.2-B for diagram.	
55.	BR 3.7	Lot 1	AR	Yes	System will generate a quarterly report of all cards returned and currently in the office. A special serial number will be assigned and report containing retained "INVALID" cards suitable for destruction. The report contains Card number, name, address and date. System will be updated with Card Destroyed, if any cards have been misplaced such fact is indicated on the report and system updated with status of card as "NOT RETRIEVABLE" and e-mail to the commissioner. The report is signed by the Officer responsible for destroying the "INVALID" cards and the approved report will be sent to the person responsible for destroying the cards at HO. The Officer at HO will file the reports received in serial number order in the respective files assigned for each authorized to retain such cards. Please refer to section 3.3.2-C for diagram.	
56.	BR 4.1	Lot 1	AR	Yes	When applicant calls, the help center will entertain based on the preferred language of the caller. Query on application or lost card will be entertained by an Automated Voice Response	

#	Column A	Column B	Column C	Column D	Column E	Column F
	Requirement number	Evaluation Lot number	Evaluation Group	Bidder's response (Yes / No)	Technical description	Ref. to support documents
					system. The verification process requires the e Citizen N umber, N IC nu mber o r Application r eference n umber. I f t he caller i s aut horized, t he assistant w ill register t he NIC n umber an d r espond t o the caller's query. Please r efer t o s ection 3. 3.4.1-A f or diagram.	
57.	BR 4.2	Lot 1	AR	Yes	Upon receive of the mail, the officer at DS or HO will register the qu ery t hrough the system w ith t he Q uery R eference Number(QRN) assigned by t he P ostal Division or of ficer ac cepting t he q uery. The system will gene rate a l ist which will be attached with the letters and passed to the of ficer handl ing queries a t H O. T he officer w ill ac knowledge the r eceived letter through the system. T hey will then verify the information on the query based on t he eCitizen N umber, N IC n umber o r Application R eference N umber. I f t he writer i s not authorized, t he s ystem w ill generate a letter requesting the applicant to per sonally r equest f or the i nformation. Else, the system will gen erate a l etter t o response t o t he i nquirer. T he o fficer should pr int t he l etter and at tach i t w ith the or iginal que ry and pas s i t t o t he authorized of ficer f or s ignature. T he queries are t hen r eturned t o t he o fficer responsible f or responding t he qu eries. The r esponses s hould be h anded t o the postal uni t with a l isting to be di spatched by pos t and update t he s ystem once posted. The officer should file the original query t ogether w ith a c opy of t he response i n Q uery R eference Number(QRN) sequence. Please r efer t o s ection 3. 3.4.1-B f or diagram.	

#	Column A	Column B	Column C	Column D	Column E	Column F
	Requirement number	Evaluation Lot number	Evaluation Group	Bidder's response (Yes / No)	Technical description	Ref. to support documents
58.	BR 4.3	Lot 1	AR	Yes	The query officer who received the email will read and copy the details onto the query form together with the inquirer's email address, name, type of queries, date and time received. The query is the passed to the officer handling queries at HO. The officer will acknowledge the receipt of query through the system. They will then verify the information on the query based on the eCitizen Number, NIC number or Application Reference Number. If the inquirer is not authorized, the system will generate an email requesting the applicant to personally request for the information. Else, the system will generate an email to response to the inquirer. The responses will be printed and passed to the authorized officer for review and approval. Once approved, the responses will be passed back to the officer handling queries at HO. The officer will email the response to the inquirer. Please refer to section 3.3.4.1-C for diagram.	
59.	BR 4.4	Lot 1	AR	Yes	When the help center receive a query via SMS, they will record the SMS in the application. The verification process requires any two pieces of information from the eCitizen Number, NIC number or Application reference number. If the caller is authorized, the assistant will register the NIC number and SMS to caller with status. The SMS details will be updated in the system. The inputs, date, time and SMS response will be recorded in the system. This function is available at the Head Office. Please refer to section 3.3.4.1-D for diagram.	

#	Column A	Column B	Column C	Column D	Column E	Column F
	Requirement number	Evaluation Lot number	Evaluation Group	Bidder's response (Yes / No)	Technical description	Ref. to support documents
60.	BR 4.5	Lot 1	AR	Yes	The verification process requires any two pieces of i nformation f rom t he eCitizen Number, NIC numb er or A pplication reference nu mber. I f the c aller i s authorized, the IVR will generate a text to voice s tatus of t he c ard. T he i nputs, date, t ime an d I VR response i n t ext w ill be recorded in the system. T his function is available at the Head Office. Please r efer t o s ection 3. 3.4.1-E for diagram.	
61.	BR 4.6	Lot 1	AR	Yes	When the que ry c enter receives a q uery through telephone, the pho ne c all will be passed t o t he r esponsible of ficer w ho could speak the preferred language of the caller. I f t he que ry i s pr eviously registered, the inquirer should provide the query reference nu mber(QRN). T he system w ill di splay t he det ails of t he query bas ed on the Q RN. E lse, t he officer will l og the quer y i nto the s ystem together w ith s elected k eywords and searches t he RPD-knowledge bas e. I f the information required is available in the knowledgebase, t he of ficer w ill r espond to t he i nquirer. I f not , t he query w ill be logged i nto t he s ystem an d r espond t o the inquirer w ithin 7 day s. T he i nquirer will be gi ven t he Q uery R eference Number(QRN) f or que ry pu rposes. T he inquirer's que ry w ill be pas sed t o t he officer handling queries at HO. Please r efer t o s ection 3. 3.4.2-A f or diagram.	
62.	BR 4.7	Lot 1	AR	Yes	The queries will be registered through the system together with a r eference number provided by t he P ostal Division. T he system w ill gener ate a l ist t hat w ill be attached with the letter and passed to the officer responsible. W hen t he l etters ar e received, t he of ficer w ill ac knowledge	

#	Column A	Column B	Column C	Column D	Column E	Column F
	Requirement number	Evaluation Lot number	Evaluation Group	Bidder's response (Yes / No)	Technical description	Ref. to support documents
					through the system and log the queries. Then, the officer will search the knowledgebase system based on the keywords of the queries. Please refer to section 3.3.4.2-B for more details and diagram.	
63.	BR 4.8	Lot 1	AR	Yes	When a caller request for a verification of Card Holder details, the query will be attended by the help-center. The help-center will verify the identity of the caller based on their NIC number. When the caller is verified, the help-center will inform the status of the Card Holder, either "Valid' or "Invalid". Then, they will update the caller ID Number and details of the caller into the system. Please refer to section 3.3.4.3-A for diagram.	
64.	BR 4.9	Lot 1	AR	Yes	The inquirer is required to fill in a form and hand it over to the RPD Head Office of DS Office. The request will be registered at the Acceptance Counter and a reference number will be generated by the system. The system will generate a payment request with a "Verification Fee'. After clarifying the NIC number, the inquirer is required to make payment at the payment counter. Once the payment receipt is received, pass it to acceptance counter and the information will be entered into the system. The acceptance counter will verify the information displayed by the system. The system will generate a report with the required details based on the NIC number being verified. Once the report is signed, it will be passed to the inquirer. The officer will file the original application in registration number sequence. A statement of income will be provided to the accounts division for validation of payment	

#	Column A	Column B	Column C	Column D	Column E	Column F
	Requirement number	Evaluation Lot number	Evaluation Group	Bidder's response (Yes / No)	Technical description	Ref. to support documents
					purposes. Please refer to section 3. 3.4.3-B for diagram.	
65.	BR 4.10	Lot 1	AR	Yes	We will provide a solution for knowledgebase to assist all offices to work efficiently and effectively. The knowledgebase will be able to do searching and retrieval of service knowledge request that will ensure accurate and consistent responses.	
66.	BR 4.11	Lot 1	AR	Yes	This solution provide a function to manage online access to the current information on the database. The selected group of institutions are required to do verification of identity. RPD and the selected group will have to sign an agreement. The agreement contains : • Information to be used • Responsibility of the institution • Procedures Based on the agreement, the system will provide the access to the institutions. The system is able to record the transactions done for future verification. The system will produce a report listing ID cards information accessed online to the RPD on a monthly basis. This report will be verified against the recorded transaction log or audit trail to ensure all accesses are recorded. For unauthorized access, a report will be generated for the Commissioner.	
67.	BR 4.12	Lot 1	AR	Yes	The knowledge entry will be translated to English by a responsible officer and submitted for approval. The status of the entry will be set to "awaiting approval". The entry will be listed in the "Knowledge	

#	Column A	Column B	Column C	Column D	Column E	Column F
	Requirement number	Evaluation Lot number	Evaluation Group	Bidder's response (Yes / No)	Technical description	Ref. to support documents
					Item List". T his function will be av ailable at the HO.	
68.	BR 4.13	Lot 1	AR	Yes	The appr oving of ficer w ill v iew the entry. If the entry is correct, the entry status will be changed to "approved" and updated in the k nowledgebase. B esides updat ing, the appr oving of ficer c ould al so c reate, review and del ete en tries f rom t he knowledgebase. Authorization levels can be s et by t he appr oval of ficer. Li st of entries t hat hav e b een a pproved c an be found i n t he "Approved Li st". This function will be available at the HO.	
69.	BR 5.1	Lot 1	AR	Yes	System w ill manage C ertifying O fficer (CO). T he s ystem will C reate, R etrieve, Update and Delete CO details. CO status will be updat ed s uch as A pplied, A ctive, Inactive, S uspended an d R etired. A status update hi story and r easons will be maintained. CO R egistration appl ication form will be provided.

Please r efer t o s ection 3. 3.5.1 f or more details. | |
| 70. | BR 5.2 | Lot 1 | AR | Yes | System will manage Stakeholders and 3rd parties. The s ystem will Create, Retrieve, Update and D elete S takeholders de tails. CO s tatus w ill be updat ed s uch as Applied, Active, Inactive, Suspended and Retired. A s tatus upd ate history and reasons will be maintained.

Please r efer t o s ection 3. 3.5.2 f or more details. | |
| 71. | BR 5.3 | Lot 1 | AR | Yes | System w ill manage DS l ocations. T he system will Create, Retrieve, Update and Delete DS Location details. DS status will be upd ated s uch as A pplied, A ctive, | |

#	Column A	Column B	Column C	Column D	Column E	Column F
	Requirement number	Evaluation Lot number	Evaluation Group	Bidder's response (Yes / No)	Technical description	Ref. to support documents
					Inactive, S uspended an d Retired. A status update hi story and r easons will be maintained. Please r efer t o s ection 3. 3.5.3 f or more details.	
72.	BR 5.4	Lot 1	AR	Yes	System w ill c reate and m aintain information relating t o w orkflows. Workflows will be defined to cover the full life c ycle of t he ev ents and i tems t hat RPD mus t ac tion. I t w ill be pos sible t o setup al ternate w orkflows w ithin eac h process, bas ed on t he t ype of event or related at tributes. A workflow definition will c onsist of t he i nformation s uch as purpose, o wner, s tandard duration, applicable obj ects/events a nd t ask which make up the workflow. Please r efer t o s ection 3. 3.5.4 f or more details.	
73.	BR 5.5	Lot 1	AR	Yes	System w ill c reate and mai ntain information r elating t o forms. T he application pr ocess r equires s pecific forms to be filled i n by appl icants. These forms will be c hange ac cording t o legislation and t he r equirements of each application t ype. S ystem w ill al lows changing t he def inition of f orms as necessary and al so as sociate k ey business dat a i tems w ith t he f orm. Special f orm r elated v alidations al so be specified. This system will be av ailable at RPD Head office.	
74.	BR 5.6	Lot 1	AR	Yes	System workflow will initiate and drive the process required to action an ev ent. If an event oc curs, t he pr ocess nec essary t o provide a proper response will be initiated by the s ystem and w ork as signed t o the appropriate of ficer. S ystem w ill c reate a workflow Instance, Create Activated tasks and Assign the first or next Activated task to an appropriate officer. This system will	

#	Column A	Column B	Column C	Column D	Column E	Column F
	Requirement number	Evaluation Lot number	Evaluation Group	Bidder's response (Yes / No)	Technical description	Ref. to support documents
					be av ailable at R PD H ead o ffice and Divisional Secretariat.	
75.	BR 5.7	Lot 1	AR	Yes	System will upgrade progress of tasks on a workflow. Please r efer t o s ection 3. 3.5.7 f or more details.	
76.	BR 5.8	Lot 1	AR	Yes	System w orkflow will as sign a t ask t o user manu ally. Some of the r eason may be bec ause of us er t o w hom it i s assigned is not available, the assignment is not c orrect or t he t ask has not been assigned. Automatic assignment of a task will be t ake pl ace as s oon as a t ask instance i s c reated. T his s ystem w ill be available at R PD H ead of fice and Divisional Secretariat.	
77.	BR 5.9	Lot 1	AR	Yes	System will refer a task to another user or group. T he s ystem w ill r efer t o an other user or group when there is activity which needs to be c ompleted by that gr oup, i n order t o complete t he c urrent t ask. T his will be nec essary w hen addi tional verification or adv ice i s r equired, and such ac tivities ar e no t pa rt of t he standard w orkflow. T he s ystem w ould create a s ub-task to be completed by the assignee. T his t ask c an be ac tion i n parallel to the pa rent w orkflow t ask after completed in order to complete the parent task. This system will be available at RPD Head office and Divisional Secretariat.	
78.	BR 5.10	Lot 1	AR	Yes	System w ill es calate a t ask t o a supervisor. This is similar to "Referring" a task, ex cept t hat i t does not c reate a separate workflow or task. The escalation is treated as a secondary assignment and could c over t he e ntire workflow f or t he workflow-item or j ust t he s ingle task.	

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#	Column A	Column B	Column C	Column D	Column E	Column F
	Requirement number	Evaluation Lot number	Evaluation Group	Bidder's response (Yes / No)	Technical description	Ref. to support documents
					Escalation normally occurs when a task breaches stipulated constraints of time, process or business practice. A task will be escalated manually by the executor or automatically by the system. This system will be available at RPD Head office and Divisional Secretariat.	
79.	BR 5.11	Lot 1	AR	Yes	System will retrieve details for a Business or Data Item. Business items will be identified via a search. Only data to which a user has access will be retrieved. There are different subsets of information for each Business Object. It will retrieve the required subsets only, for a given Business item. The examples of Business Objects and Data Subsets are such as Person (Personal data, Family/Relationships, A pplications, Payments, Queries and Documents) and Application (Person, Type, A pplication data, Workflow, History, Q ueries and Documents). This system will be available at RPD Head office, Divisional Secretariat and Mobile Units.	
80.	BR 6.1	Lot 1	AR	Yes	Ownership of a data object will be assigned to a specific location and user. Ownership will be granted for a limited period, after which ownership would revert to previous owner. It will be possible for an authorized user to take ownership of a Data item. This is an administrative function, and will be used only if the current owner is unavailable or unable to process a request for ownership. This system will be available at RPD Head office.	

#	Column A	Column B	Column C	Column D	Column E	Column F
	Requirement number	Evaluation Lot number	Evaluation Group	Bidder's response (Yes / No)	Technical description	Ref. to support documents
81.	BR 6.2	Lot 1	AR	Yes	Off-line updates will be carried out when the user does not have direct access to the database, or when the user/location does not have ownership of the Data item. The changes will be stored locally and also submitted to the owner. The owner may implement the change or grant ownership to the originator, to carry out the change. This service is a generic mechanism to ensure consistency. The actual changes will be carried out by the service relevant object. The system will be synchronize and propagate changes to distributed database. This system will be available at RPD Head office.	
82.	BR 6.3	Lot 1	AR	Yes	The system can request updated information. It will be able to request specific data item to be updated. The requirement is to synchronize the data, a portion of data or a specific item. This facility can be required at secondary locations. The database will be consistent with the central DB. This system will be available at RPD Head office.	
83.	BR 6.4	Lot 1	AR	Yes	The system will be required to respond other requested which may originate externally. The requested data will be located and packaged as an Electronic Data Message (EDM) and sent to the requester. Security and availability will be verified. This system will be available at RPD Head office.	
84.	BR 6.5	Lot 1	AR	Yes	The system will apply an update. When notified change to a data item or updated information is requested and received, the update will be applied to the local and central databases wherever applicable. This system will be available at RPD Head office and Divisional Secretariat.	

#	Column A	Column B	Column C	Column D	Column E	Column F
	Requirement number	Evaluation Lot number	Evaluation Group	Bidder's response (Yes / No)	Technical description	Ref. to support documents
85.	BR 6.6	Lot 1	AR	Yes	The system will identify active DB locations for a data item. It may be necessary to determine who has ownership of a specific data item. There may be more than one owner, if the data item has sub-sets. The relevant locations and users will be identified. This system will be available at RPD Head office.	
86.	BR 6.7	Lot 1	AR	Yes	The system will maintain transaction logs and audit trails on all operations irrespective of whether they are carried on local databases or on central databases. Users with appropriate authority will be able to search, retrieve and view audit records. This system will be available at RPD Head office and DS offices.	
87.	BR 7.1	Lot 1	AR	Yes	System will create a file containing data or a message required to be transmitted. The information will be encrypted and packaged as an Electronic Data Message when information needs to be transmitted electronically between locations. The message will include additional information to indicate the source (user, task), target and method of transmission. The file will be transmitted to the target location, and can be deleted after successful transmission. The electronic form/data would be stored in a predetermined location. This service is a utility, and is not expected to carry out any business level validations. A history off all files generated and transmitted will be maintained. Transmission may be via Messaging. This system will be available at RPD Head office, DS office and Mobile office.	

#	Column A	Column B	Column C	Column D	Column E	Column F
	Requirement number	Evaluation Lot number	Evaluation Group	Bidder's response (Yes / No)	Technical description	Ref. to support documents
88.	BR 7.2	Lot 1	AR	Yes	The E DM p rocess may be received directly through the internet, e-mail, or via off-line storage media (diskette, USB etc). System will decrypt or interpret message and t racking appl icable doc ument. Then the message will submit to target function if applicable. System will update the data if authorised, otherwise store as an EDM update a nd pen ding c onfirmation. T he data ac cess s ecurity w ill be v erified f or target as well as source. This system will be av ailable at R PD H ead of fice, D S office and Mobile office.	
89.	BR 8.1	Lot 1	AR	Yes	This system will be able to do the general printing. I t w ill be abl e t o print any information di splayed (unless i ndicated otherwise due t o c onfidentiality or security). S pecific p rint f acility w ill b e provided v ia t he e NIC S oftware S ystem to pr ovide "printer-friendly" o utput. F or reports or other formatted documents, the system w ill be abl e t o i ndicate w hether pre-printed stationery is available to print accordingly and al so abl e t o pr int a number of copies if required. If common, central pr inter will be us ed and ow ner of the r eport will be i ndicated on t he report or on a cover page. For documents which are r estricted, any pr int request w ill be logged. T his s ystem w ill be av ailable at RPD H ead office, D S office and M obile office.	
90.	BR 8.2	Lot 1	AR	Yes	This s ystem w ill be abl e t o pr int regular reports. Reports identified during the BPR are listed in Section 12 of the BPR report. It w ill be abl e t o select a r eport, and specify the s cope c riteria f or the c ontent and o btain t he reports. It will be able t o select s everal r eports and s pecify	

#	Column A	Column B	Column C	Column D	Column E	Column F
	Requirement number	Evaluation Lot number	Evaluation Group	Bidder's response (Yes / No)	Technical description	Ref. to support documents
					common scope criteria if applicable. This system will be available at RPD Head office, DS office and Mobile office.	
91.	BR 8.3	Lot 1	AR	Yes	This system will be able to print general information. This service will support printing of any information retrieved via the generic Information Retrieval service. This system will be available at RPD Head office, DS office and Mobile office.	
92.	BR 8.4	Lot 1	AR	Yes	This system will be able to print the bar code labels and on documents as specified. The printing will include the number in human readable form as well. Printing of 1D and 2D bar codes will be supported. This system will be available at RPD Head office, DS office and Mobile office.	
93.	BR 8.5	Lot 1	AR	Yes	This system will be able to print the address labels. This system will be able to select the language for printing or to print in the recipient's preferred language. This system will be available at RPD Head office, DS office and Mobile office.	
94.	BR 8.6	Lot 1	AR	Yes	This system will be able to print the registered letter list. It will be able to select (multiple or individual) and generate lists that could be handed over to the post Office. This system will be available at RPD Head office and DS office.	
95.	BR 9.1	Lot 1	AR	Yes	This system will generate list of outstanding registrations. This service is secondary service, required for follow up and monitoring. It will compile a list of eligible persons by DS. This system will be available at RPD Head office.	

#	Column A	Column B	Column C	Column D	Column E	Column F
	Requirement number	Evaluation Lot number	Evaluation Group	Bidder's response (Yes / No)	Technical description	Ref. to support documents
96.	BR 9.2	Lot 1	AR	Yes	This system will generate reminders for task based on the task definition. All generic task definitions would incorporate the alert event definition which would be applied to all Activated tasks, when this service is executed. All tasks may not require reminders. This system will be available at RPD Head office, DS office and Mobile office.	
97.	BR 9.3	Lot 1	AR	Yes	This system will generate warning on delayed tasks or workflows. If any Activated-task or Activated Workflow is not completed within the "expected duration", a warning will be issued to all users associated with the related work-item. In computing the lapsed period, it will correspond to the unit in which the "expected duration" is specified. This system will be available at RPD Head office, DS office and Mobile office.	
98.	BR 9.4	Lot 1	AR	Yes	This system will identify Activated-tasks or a Work-item which are delayed beyond the maximum expected duration, and escalate the tasks and workflows via related processes. This system will be available at RPD Head office, DS office and Mobile office.	
99.	BR 9.5	Lot 1	AR	Yes	The system will escalate all Activated-tasks and Works-item which are not action or started. Tasks maybe escalated related processes. When there is no task available for escalation, new "resumed case" will be created in order to force an investigation and proper closure or routing of the item. The threshold for non-action alerts will be defined per Business Object and Task. This system will be available at RPD Head office, DS office and Mobile office.	

#	Column A	Column B	Column C	Column D	Column E	Column F
	Requirement number	Evaluation Lot number	Evaluation Group	Bidder's response (Yes / No)	Technical description	Ref. to support documents
100.	BR 9.6	Lot 1	AR	Yes	This system will be possible to generate alerts based on events and error conditions detected by other services. Such events will be lodged as alert events by the service which detects it. The event will be removed once the alert has been generated. This system will be available at RPD Head office, DS office and Mobile office.	
101.	BR 10.1	Lot 1	R	Yes	This system allows maintenance of templates. Information stored in the templates is Description, Security, Classification, a link to the template, etc. Different languages are supported for the same template. This function will be available at the RPD Head office.	
102.	BR 10.2	Lot 1	R	Yes	The templates can be searched. The system allows user to enter search criteria such as name, class or keyword and results are returned in a list format. This function will be available at the RPD Head office, DS Office and Mobile Office.	
103.	BR 10.3	Lot 1	R	Yes	This solution allows maintenance of codes, symbols and reference data. Functions provided are Add, Change, De-activate(expire) and Supersede Entries. Entries are not allowed to be deleted, instead, entries may be cancelled or de-activated to prevent future use. Codes will be maintained only at the central database. The secondary databases will receive updates via EDM. This function will be available at the RPD Head office.	
104.	BR 10.4	Lot 1	R	Yes	This function generates documents, merging data to fill in fields and place holder from the database. Any controls and rules regarding security, copies, etc. will be followed. There will be a note indication whether the document requires signature or not. This function will be available at the RPD Head office, DSO	

#	Column A	Column B	Column C	Column D	Column E	Column F
	Requirement number	Evaluation Lot number	Evaluation Group	Bidder's response (Yes / No)	Technical description	Ref. to support documents
					and the RPD mobile units.	
105.	BR 11.1	Lot 1	AR	Yes	The R PD W ebsite w ill s upport t he business and us er f unctions s pecified i n the I FB doc ument. T he w ebsite w ill follow t he s tandards and r equirements given in Annexure V : RPD Web Site	
106.	BR 11.2	Lot 1	AR	Yes	This s olution supports W eb S ervice, where access to the e-NIC system will be available v ia a R equest/Response mechanism.	
107.	BR 11.3	Lot 1	AR	Yes	Statistics will be gener ated and s tored i n a form which facilitates qui ck r etrieval of regular reports, without requiring retrieval and analysis of all data each time. It also allows r e-computing t he s tatistics f or a specific per iod, i f t he moni toring indicators are changed, or new indicators are introduced. The regular generation of statistics w ill be a s cheduled p rocess. I t will be pos sible to ex tract s tatistical dat a for further analysis to support publ ication of t he annual s tatistics r eport an d ot her ad hoc reports. Please refer to s ection 3 .3.11.3 f or more details.	
108.	BR 11.4	Lot 1	AR	Yes	Reports are required by the management in or der t o mo nitor, and t o mak e operational and s trategic dec isions. T he format an d anal ysis may change ov er time, and i t will be pos sible to create new reports. A ll MIS reports will comply with the r equirements s tated i n t he B PR report.	
109.	BR 12.1	Lot 1	AR	Yes	Access pr ivileges ar e gr anted t o a user by assigning Roles and Domain P rofiles. Each role des cribes a position within the functions of t he RPD. A us er w ho belongs to mo re than one role will hav e	

#	Column A	Column B	Column C	Column D	Column E	Column F
	Requirement number	Evaluation Lot number	Evaluation Group	Bidder's response (Yes / No)	Technical description	Ref. to support documents
					the rights of all those roles. Each role will be def ined with ad equate p rivileges t o carry out t he responsibilities as signed t o that role. This function is applied through out the system.	
110.	BR 12.2	Lot 1	AR	Yes	Security and ac cess c ontrol w ill be integrated w ith t he relevant o perating system ac cess c ontrol mec hanisms, inclusive of pas sword manage ment and relevant profile management functions. It also pr ovides s ingle s ign on (SSO) t o access al l s ervices w ith appr opriate privileges. T his f unction w ill be appl ied throughout the system.	
111.	BR 12.3	Lot 1	AR	Yes	Base on s ecurity and ac cess pr ivileges, the s ystem w ill det ermine w hether an operation c an b e pe rformed. A n ac cess request will be made o nly by the s ervice which w ould pe rform t he o peration. T he privileges of t he us er and t he s ervice as well as the current ownership assignment will be c onsidered. This f unction w ill be applied throughout the system.	
112.	BR 12.4	Lot 1	AR	Yes	This f unction al lows c reating and maintaining i tems i n t he s ecurity framework which ar e Roles, D omains, Domain P rofiles and B usiness O bjects. Services and t heir ac cess t ights t o Business O bjects w ill be def ined. However t hat w ould be non -changeable system data. This function will be applied throughout the system.	
113.	BR 12.5	Lot 1	AR	Yes	A l og ent ry w ill be made w henever a service i s i nvoked. A n audi t l og entry cannot be d eleted o r c hanged. T his w ill be prevented at the lowest possible level. If t he end -time i s r equired, a s econd l og entry w ill b e r equired. This f unction w ill be applied throughout the system. Please r efer to s ection 3 .3.12.5 for more	

#	Column A	Column B	Column C	Column D	Column E	Column F
	Requirement number	Evaluation Lot number	Evaluation Group	Bidder's response (Yes / No)	Technical description	Ref. to support documents
					details.	
114.	BR 12.6	Lot 1	AR	Yes	It w ill be pos sible t o hav e different activities l ogged at di fferent l evels of detail. I t w ill not be pos sible to turn off the bas ic audi t t rail c ompletely, but t he operations w hich ar e l ogged and t he detail l og s hould be t urned on o r o ff as required. Please refer to s ection 3 .3.12.6 for more details.	
115.	BR 12.7	Lot 1	AR	Yes	Information can be extracted from the log, for a specified period, or relating to a type of bus iness obj ect, o r t o a s pecific business item. The pur ge audi t l og f eature w ill be provided f or c ompleteness of t he function. P urging t he audit l og w ill be restricted, and is archived and stored off-line for query purposes. T hese functions are available at the RPD HO. Please refer to s ection 3 .3.12.7 for more details.	
116.	BR 12.8	Lot 1	AR	Yes	Administration f unctions w ill be pr ovided such as as signing roles an d do main profiles, c hange per sonal s etting a nd password administration.	
117.	BR 13.1	Lot 1	AR	Yes	The s olution w ill s upport oper ational workflows t o gui de users. O n ' On-logging' ev ent, t he users w ill be presented w ith a l ist of ac tivated t asks requiring at tention. T he l ist w ill be grouped by several groups such as T ype of Work and within the group, it should be sorted by t he des cending o rder of t he	

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	Requirement number	Evaluation Lot number	Evaluation Group	Bidder's response (Yes / No)	Technical description	Ref. to support documents
					urgency or priority. Please refer to section 3.3.13.1 for more details.	
118.	BR 13.2	Lot 1	AR	Yes	It is possible to navigate easily through the workflow. Please refer to section 3.3.13.2 for more details.	
119.	BR 13.3	Lot 1	AR	Yes	All functions that are not part of the workflow and which will be used when required, will be accessible via a context based menu, or tool bar, in an easy-to-use manner. This function is available throughout the system.	
120.	BR 13.4	Lot 1	AR	Yes	Language requirements will be handled differently for the type of content. Please refer to section 3.3.13.4 for more details.	
121.	BR 13.4-a	Lot 1	AR	Yes	The system will facilitate searching for information in any language. Search results will be according to the security and accessibility of data to a particular user. Wild Card search is supported. Please refer to section 3.3.13.5 for more details.	
122.	BR 13.5	Lot 1	AR	Yes	It is possible to capture data of forms in off-line mode and upload the captured data to the system as a batch process when connectivity is available. When completing a form on-line, if information is already available from a previous application in the database, the system will allow the user to load the existing information to the new form and modify it. This will reduce the data entry process. This function is available throughout the system.	

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	Requirement number	Evaluation Lot number	Evaluation Group	Bidder's response (Yes / No)	Technical description	Ref. to support documents
123.	BR 13.6	Lot 1	AR	Yes	System is able to interface with any other systems or devices which may be l inked to t he s ystem. S ome of t he ex amples are: • Bar-code reader • Document scanners • Document/image s torage an d retrieval This f unction i s av ailable t hroughout t he system.	
124.	BR 14.1	Lot 1	AR	Yes	System i s based on a loosely coupled n-tiered a rchitecture(n>=3) t hat s eparate the f ront-end, bus iness l ogic, communication and dat abase as pects i n to different coupled layers.	
125.	BR 14.2	Lot 1	AR	Yes	All c lients i nterfaces ar e w eb bas ed and compatible w ith i ndustry s tandard w eb browsers.	
126.	BR 14.3	Lot 1	AR	Yes	All c entralized appl ications ar e f ully redundant and f ault t olerant w ith automatic fail-over. There will not be any single poi nt of f ailure i n t he e ntire application architecture.	
127.	BR 14.4	Lot 1	AR	Yes	Will maintain the mi nimum pe rformances standards as s tated i n eNIC t ender requirements.	
128.	BR 14.5	Lot 1	R	Yes	All i nformation t echnologies us ed i n t he application (except f or s tandard s oftware such as oper ating s ystems, dat abase system, et c.) will be bas ed on ' Open Standards' t hat a re s upported by mor e	

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	Requirement number	Evaluation Lot number	Evaluation Group	Bidder's response (Yes / No)	Technical description	Ref. to support documents
					than a single vendor.	
129.	BR 14.6	Lot 1	AR	Yes	The s ystem i s capable of handl ing 20 million ID card hol ders. T he database is expected t o be popul ated at a r ate of approximately 1000 I D c ard hol ders per day. T he appl ication w ill scale appropriately as t he numbe r of us ers increase.	
130.	BR 14.7	Lot 1	AR	Yes	Overall application architecture will follow a s ervice or iented des ign (SOA). Services w ill be l oosely c oupled and modular in design. Furthermore, s ervices will be s ecurely ac cess through 'Publish/Subscribe' ar chitecture. System will c omply w ith X ML b ased data exchange.	
131.	BR 14.8	Lot 1	AR	Yes	Overall s ystem ar chitecture w ill be compatible w ith t he National E nterprise Architecture (NEA) s tandards and guidelines of t he I nformation and Communication T echnology A gency of Sri Lanka.	
132.	BR 14.9	Lot 1	AR	Yes	All dat a f ormats us ed i n t he s ystem w ill be ac cording t o t he LI Fe dat a f ormats and standards.	
133.	BR 15.1	Lot 1	AR	Yes	When a n ew application for an ID card is being pr ocess, t he f inger print i mage captured will be c ompared ag ainst t he database. Results of this comparison will then be di splayed t o t he app roving	

#	Column A	Column B	Column C	Column D	Column E	Column F
	Requirement number	Evaluation Lot number	Evaluation Group	Bidder's response (Yes / No)	Technical description	Ref. to support documents
					officers. Please r efer t o s ection 3. 4.3 f or more details.	
134.	BR 15.2	Lot 1	AR	Yes	Fingerprint matching s ystems will be implemented as s eparate modules t hat are l oosely c oupled t o t he mai n s ystem and w ill mai ntain t heir own local databases for the feature pa rameters. All transactions bet ween t he mai n s ystem and the f ace / fingerprint mod ules w ill be carried on a ' request/response' basis using a standard-non pr opriety messaging protocol. Please r efer t o s ection 3. 4.3 for mor e details.	
135.	BR 15.3	Lot 1	AR	Yes	Facial mat ching s ystems w ill l ater b e implemented as a l oosely c oupled module t o t he mai n s ystem and would maintain i ts ow n l ocal dat abases f or t he feature parameters. The main s ystem will provide 'request/response' basis interface that c arryout al l t ransactions us ing a standard-non p ropriety mes saging protocol. The p rocess w ill be s imilar o AFIS Fingerprint Please r efer t o S ection 3 .2.4 S OA and Web Services and Section 3.4.2.	
136.	DC 1.1	Lot 2	AR	Yes	Two units IBM pSeries cluster configuration with both have: 4.2Ghz x 4 Processor of Power 6 Processor 16GB Memory 2x146 15K RPM Disk O/S Mirror Operatiing System AIX5.3 Our solution is using IBM HACMP clustering to run the database and using	

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	Requirement number	Evaluation Lot number	Evaluation Group	Bidder's response (Yes / No)	Technical description	Ref. to support documents
					this the system is able to provide the high availability and fault-tolerance. Database record will be stored at SAN storage and daily backup to tape will be perform. Please refer to section 3.5.2 and 3.5.2.1about database cluster and details server. Section 3.5.4 for capacity requirement.	
137.	DC 1.2	Lot 2	AR	Yes	IBM x3850 M2 with the following specification; 2xXeon Quad Core E7330 2.4GHz 12G DDR2 SDRAM 2x1000 NIC Adaptor 3x146GB HDD RAID 5 IBM WebSphere network deployment distributes workload across multiple server through sophisticated load-balancing and clustering capabilities, including automatic fail over capability and content-based routing. Please refer to Section 3.5.2 and 3.5.2.1 and 3.5.3 about details server	
138.	DC 1.3	Lot 2	AR	Yes	At back office server we are proposing a IBM xSeries 3350 ; Xeon Quad the specification is base on the usage; Please refer to Section 3.5.3 for more information.	
139.	DC 1.4	Lot 2	AR	Yes	We are proposing enterprise network into few zones; Gateway Zone, DMZ Zone, Secured Zone, User zone. Firewall, IPS and AV being proposed to provide more security to server from external and internal access. Please refer	

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	Requirement number	Evaluation Lot number	Evaluation Group	Bidder's response (Yes / No)	Technical description	Ref. to support documents
					to Section 3.5.6 for more info about data center security.	
140.	DC 1.5	Lot 2	AR	Yes	Please refer to Section 3.5.6 for our solution.	
141.	DC 1.6	Lot 2	AR	Yes	We will provide the following below :- 3 nos of CCTV c/w monitoring system, recording and surveillance.Fire Protection called FM200 c/w Alarm and 2 unit Smartkeys Biometric Access Control	
142.	DC 1.7	Lot 2	AR	Yes	We Propose electrical system will provide redundant power supply to the IT equipment for high availability and to avoid single point of failure in the Data Centre. The UPS system will remove surges, electrical noise and harmonics and also Stan by Generator Set will automatically take on the load and work parallel to the UPS. The Floor Stand MSB will locate at Utility Room in Data Center and will have 2 Sub DB for UPS and Assential	
143.	DC 1.8	Lot 2	AR	Yes	One units of Powerware 9390 - 60KVA UPS have been proposed with autonomy time of 10 mins. and include batteries of 5 years design life span. The proposed Powerware 9390 UPS units are manufactured in USA by Eaton	

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	Requirement number	Evaluation Lot number	Evaluation Group	Bidder's response (Yes / No)	Technical description	Ref. to support documents
					Powerware.	
144.	DC 1.9	Lot 2	AR	Yes	Civil works will provide 989 sq size including Partitioning, Raise Floor, environment and temperature control at existing office	
145.	DC 1.10	Lot 2	AR	Yes	All active device will be cover by a 3 year comprehensive warranty and all passive component will covered by 7 year comprehensive warranty	
146.	HO 1.1	Lot 3	AR	Yes	60 nos of Panora F18s, Intel Core 2 Duo E4500 processor, 1GB RAM, 160GB, HDD, 17" LCD, CD ROM, Genuine Win XP Pro	
147.	HO 1.2	Lot 3	AR	Yes	Heavy duty document scanner which ability to scan up to A3 size with network operation and ADF.	
148.	HO 1.3	Lot 3	AR	Yes	Heavy duty digital printer / copier which able to print up to A3 size, automatic duplex printing with document sorting, networked operations with printer and user management.	
149.	HO 1.4	Lot 3	AR	Yes	Color laser printer / copier with ability to print up to A3 size, automatic duplex printing with document sorting, networked operations with printer and user management.	

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	Requirement number	Evaluation Lot number	Evaluation Group	Bidder's response (Yes / No)	Technical description	Ref. to support documents
150.	HO 1.5	Lot 3	AR	Yes	A complete operations monitoring room inclusive of large displays, hardware and software support for the following: - Network health and performance monitoring - e-NIC software system health monitoring - Monitoring activities of RPD counters at DS office through IP cameras - Provide and monitor Help-desk support to remote RPD staff - Monitoring of statistics on key performance parameters on application acceptance, processing, ID card printing and query management - Operations Management staff for four years	
151.	HO 1.6	Lot 3	AR	Yes	HP Compaq 6710b Notebook; HP Compaq 6710b (Intel Dual Core Processor, 1GB DDR2 SDRAM, 120GB Hard Disk. Lexmark E120n Laser Printer - Monochrome Laser - 1200 Image quality - 20ppm (letter)	
152.	HO 1.7	Lot 3	AR	Yes	One units of Powerware 9390 – 60KVA UPS have been proposed with autonomy time of 10 mins. and include batteries of 5 years design life span. The proposed Powerware 9390 UPS units are manufactured in USA by Eaton Powerware.That UPS will located at Utility Room at Data Center	

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	Requirement number	Evaluation Lot number	Evaluation Group	Bidder's response (Yes / No)	Technical description	Ref. to support documents
153.	HO 1.8	Lot 3	AR	Yes	We Propose electrical system will provide redundant power supply to the IT equipment for high availability and to avoid single point of failure in the Head Office. The UPS system will remove surges, electrical noise and harmonics and also Stanby Generator Set will automatically take on the load and work parallel to the UPS. The Floor Stand MSB will locate at Utility Room in Data Center and will have 2 Sub DB for UPS and Assential to cater the power load for Head Office	
154.	HO 1.9	Lot 3	AR	Yes	All active device will be cover by a 3 year comprehensive warranty and all passive component will covered by 7 year comprehensive warranty	
155.	DS 1.1	Lot 3	AR	Yes	One units each of desktop Panora F18s for each DS; Intel Core 2 Duo E4500 processor, 1GB RAM, 160GB, HDD, 17" LCD, CD ROM, Genuine Win XP Pro	
156.	DS 1.2	Lot 3	AR	Yes	Panora F18s for each DS; Intel Core 2 Duo E4500 processor, 1GB RAM, 160GB, HDD, 17" LCD, CD ROM, Genuine Win XP Pro\n\nFlatbed Scanner\n\nCrossmatch LScan 100R\n\nDigital Camera	
157.	DS 1.3	Lot 3	AR	Yes	Lexmark E250dn Laser Printer	

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	Requirement number	Evaluation Lot number	Evaluation Group	Bidder's response (Yes / No)	Technical description	Ref. to support documents
158.	DS 1.4	Lot 3	AR	Yes	DLINK DCS – 900 10FSp; 320x120 px IP Web Camera.	
159.	DS 1.5	Lot 3	AR	Yes	One units of Defender - 3KVA UPS have been proposed with autonomy time of 10 mins. and include batteries of 5 years design life span. The proposed Defender UPS units are manufactured in Italy.	
160.	DS 1.6	Lot 3	AR	Yes	The proposed electrical system will provide power supply to the IT equipment for high availability and to avoid single point of failure in the RPD Head Office. Power system for the every 4 workstation will back up by UPS system within 10 min and UPS also will remove surges, electrical noise and harmonics	
161.	DS 1.7		A	Yes	All active device will be cover by a 3 year comprehensive warranty and all passive component will covered by 7 year comprehensive warranty	
162.	DS 1.8	Lot 3	AR	Yes	For the Furniture setup, we propose four workstation inclusive of chair, document cabinet and two nos of chest of drawers to meet the Data DS Office Requiment , for the waiting applicants we will provide the Link Chair .	
163.	MR 1.1	Lot 4	AR	Yes	Brand new Lanka Ashok Leyland VIKING Air-Conditioned high Roof Bus powered by six cylinders AL	

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	Requirement number	Evaluation Lot number	Evaluation Group	Bidder's response (Yes / No)	Technical description	Ref. to support documents
					HINO WOOD 160 HP.	
					Serat engine driven A/C Turbo charged diesel engine engine	
					Fitted with five forward one reverse speed synchromesh gearbox,	
					Right hand drive integral power steering, seven nos 9.00x20 size	
					Tyres, 2x12 Volt batteries, full air pressure dual line fall safe breaks	
					Standard tool kit and jack, steel structured all aluminum paneled	
					High roof modern elegant designed separate engine driven Air	
					Conditioned bus with 52 high backs seats in 3x2 lay out	
					Construction of interior office and branding exterior using below	
					Material	
					* 02 nos work stations with sufficient space/ capacity for notebook	
					Computer, data entry operator and a staff officer- made out with	
					9mm – 12mm MDF sheets, painted with pre & post coat using CIC	
					Auto paints, partitioning for Drawers, Lockers	
					* 01 no of image Thumb – impression capturing stations with necessary	
					Back drop, partitioning and lighting –	

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	Requirement number	Evaluation Lot number	Evaluation Group	Bidder's response (Yes / No)	Technical description	Ref. to support documents
					made out with 9mm – 12mm MDF sheets, painted with pre & post coat using CIC auto paints Backdrop to be made out with MDF sheet pre coated paints and Digitally pigment based sticker to be pasted. * Whole unit to be illuminated with sufficient lighting and pin spots * Seating capacity for 08 officials made rotating chairs for * Workstations & 02 additional chairs * Fully carpeted floor with Re-furbished Roof, Left & right body * Branding exterior using digitally printed solvent base PVC sticker * Required power supply system	
164.	MR 1.2	Lot 4	AR	Yes	Brand ne w MI TSUBISHI ROSA 30 seater High roof Bus with color model BE 637G RMSH – 30 S eater c ustom high roof with cooler, Heater & Defroster (front & R ear), A utomatic folding type door (Vacuum Type) 4D33-4A S troke, F ront un der v iew mirror, direct injection, Diesel engine 4214cc, Lockable fuel tank cap, Heavy duty spring, front & rear, Exhaust brake system, Clutch booster,	

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	Requirement number	Evaluation Lot number	Evaluation Group	Bidder's response (Yes / No)	Technical description	Ref. to support documents
					Reverse warning buzzer,	
					Standard tool set spare type & carrier	
					Brand new Lifter (Made in Italy), S6500, Yanmar L100 (Air cooled diesel)	
					4.84Kva output at 230 Volts single phase 2 wire – 50Hz – 3000 RPM	
					Sound attenuated canopy	
					Construction of interior office and branding exterior using below	
					Material	
					* Fully air conditioned	
					* 02 nos of Workstations (with sufficient space/ capacity for a notebook	
					Computer, data entry operator and a staff officer in charge for	
					Application verification – to be provided in Knocked-down or fordable	
					Form – suitable to be setup outside vehicle within a short period of time	
					Made out with 1.2mm heavy duty box iron and sufficient brackets with	
					Outer to be covered using 9mm – 12mm MDF sheets painted with pre &	
					Post coat CIC paints	
					* 02 nos of portable image printed on Flex digital with Islets hooks to mount	
					* Thumb impression capturing stations with necessary backdrop	

#	Column A	Column B	Column C	Column D	Column E	Column F
	Requirement number	Evaluation Lot number	Evaluation Group	Bidder's response (Yes / No)	Technical description	Ref. to support documents
					partitioning And l ighting – made w ith 9mm – 12mm MDF sheets painted pre & post coat Using C IC p aints, bac kdrop t p b e made w ith MDF sheets w ith pre c oat and Digital pi gment base s ticker pas ted and required lighting and pin spots * Conventional seating capacity either in Vehicle mounted or in a Knockdown Or fordable form * Fordable c hairs f or w ork s tations, inclusive of 4 additional chairs for Applicants * S ufficient Li ghting and pow er supply system * B randing ex terior us ing di gital solvent base PVC stickers	
165.	MR 1.3		A	Yes	ICT components in the mobile units are covered by a three (03) year comprehensive warranty and related mechanical components are covered by 50,000 km warranty	
166.	MR1.4	Lot 4	AR	Yes	All maintenance and operational cost of the mobile units inclusive of paid drivers, repair and maintenance, revenue license, insurance and all other operational costs involved in keeping the units in good running condition	

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	Requirement number	Evaluation Lot number	Evaluation Group	Bidder's response (Yes / No)	Technical description	Ref. to support documents
167.	CR 1.1a		A	Yes	We comply with the requirement and will be delivering finished ID Cards which meet the ISO 7810 standards requirement pertaining to physical properties of the card.	
168.	CR 1.1b		A	Yes	We comply with the ISO 10373 standards requirement pertaining to ID Card Durability tests. We have the experience of providing security card solution to the Mexican Voter ID Card program at the national level with annual issuance volume of more than 5 mil cards.	
169.	CR 1.2		A	Yes	We are proposing a 3-part material construction comprising of pre-printed information in an inner layer of the ID Card during card manufacturing / fabrication. (i) All pre-printed features will be incorporated on the Teslin "inner layer" during the card construction before completion of the final card fabrication (ii) we will print the required Running Serial Number (unique for each card) on the Teslin Inner Layer in compliance with the specification (CR 1.2), thereby providing the capability for highest degree of logistical control. The proposed running serial number will be visibly printed on each card. The construction of the serial number will consist of the batch code of 06 Alphabetic Characters and a running sequence bath number of 03 digits in compliance with requirement CR 1.2 of tender specification	
170.	CR 1.3a		A	Yes	All personalization of the variable data will be done on the inner layer of the card construct (inclusive of color / grayscale photographs). (i) Printing of Photographs - size to be 25 mm x 35 mm according the artwork specifications provided by client, printed on either colour or gray-scale, resolution of 300 dpi (up to 600	

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					dpi) per requirement in both directions, background of the photograph is alpha-blended with the card background according to the artwork specifications provided by the client. (ii) Other Personalization Data - All textual data are printable in three languages (Sinhala, Tamil and English) using typefaces specified by the client and according to the artwork specifications; printing is based on pure black and white at a resolution of 300 dpi (up to 600 dpi); the following minimum information (but not limited to) will be printed on the card during the personalization; - Unique NIC Number - Holder's full name in three languages and other information in Sinhala and Tamil - Date and Place of Birth - Address	
171.	CR1.3b		A	Yes	Machine readable data compliance - The PDF417 barcode employed on the eNIC will contain the individual's name, address, date of birth and other data as specified by the RPD (preferably including the Running Serial Number of the card) not to exceed the maximum limit of 2,000 characters (2K bytes) as defined in the PDF417 standard. The PDF417 code employed will contain error correction to increase its readability under harsh conditions consistent with the environment and the anticipated 10 year lifetime of the card. The exact format of the data fields within the PDF417 barcode is defined by the RPD and the barcode on our proposed card will comply.	

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	Requirement number	Evaluation Lot number	Evaluation Group	Bidder's response (Yes / No)	Technical description	Ref. to support documents
172.	CR 1.4	Lot 5	AR	Yes	Security Features: We are offering the following security features in the pre-printed card background: • Optically variable ink (OVI) • UV reactive visible and invisible printing • Rainbow and guilloche pattern printing • Microtext printing • Ghost photograph The background Security Graphic Art Design for the eNIC card will be designed by JURA JSP of Hungary. Jura is considered as the world's No.1 supplier of security design software to the Security Graphic Arts Designer market. We are offering the ICI (invisible constant information) as UV invisible image. ICI© is a patented high-resolution digital technology for the protection of legal and ID documents against reproduction. The genuine product should not be reproducible but with remarkable changes only (i. e. the ICI© effect does not work on the copy of a genuine document). This patented digital technology encodes secondary information into a source image so that the secondary image is invisible to the human eye. A simple decoder device is needed to verify the authenticity of the document, that is, to decode the information. As such 200 decoders will be provided free of charge to the client. Combining ICI with UV and/or IR inks	

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	Requirement number	Evaluation Lot number	Evaluation Group	Bidder's response (Yes / No)	Technical description	Ref. to support documents
					strongly enhances the security level of this feature. In this proposal, We will combine with these inks for maximum security effect. The UV printed secondary motive (hidden image) visible only under a lenticular lens and UV/IR light, while the primary image comes up under the light alone. The completed card construct is able to prevent and deter fraudulent attempt at data alteration and counterfeiting.	
173.	CR 1.5	Lot 5	R	Yes	Additional Security Feature: We offer an optically variable hologram which will be applied on the inner side (adhesive side) of the front laminate in compliance with Requirement CR1.5 of the IFB. The hologram will be produced according to customized design as agreed and approved by the client. Our state-of-the-art origination labs will provide a highly visible, complex and customized design that has both overt and covert features to meet the solicitation requirements. If the holographic OVD embedded in the Card is tampered with, the image will break apart leaving clear evidence that the card has been tampered with. In addition to our standard array of security features built into our OVD holograms, We will incorporate a special Hidden Image feature. This feature can be seen at a different tilt (viewing angle) of the Card thus providing an excellent overt security feature for use by enforcement officers in the field. As an alternative, we are also offering our highest level security feature, the OpSec Advantage™ technology as an alternative to the hologram OVD, to be similarly applied to the inner side of the front	

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	Requirement number	Evaluation Lot number	Evaluation Group	Bidder's response (Yes / No)	Technical description	Ref. to support documents
					laminate. The proprietary OpSec Advantage™ security technology (available only from OpSec) is a liquid crystal optical variable device used only for high security government documents and ID credentials. This technology would be applied to the eNIC card as an overt security feature that is embedded in the card. Advantage™ has the unique attribute of being a transparent feature when viewed directly; the Advantage™ image changes from orange to green when viewed from different viewing angles. This tri-modal attribute would serve extremely well in protecting the eNIC card from duplicating by any means. It is an excellent first level verification for use by enforcement officials. This security feature is not commercially available and only used on high security government ID application such as Passports and NID Cards. The unique design ultimately chosen by the Government of Sri Lanka will not be available anywhere else in the world. The production of Advantage™ liquid crystal, tri-modal OVD is protected by several U.S. patents and trade secrets. The technology is used in many classified high security applications by many governments and their security agencies globally. We are also offering IPI which is a high security feature developed to specifically protect personalization of ID credentials. This feature links the photograph to the personal data of the card holder and to the document. Invisible Personal Information (IPI) encodes personal data and the Serial Number of the ID card into the photograph while personalizing the Card. The personal data is invisible to the unaided eye, but the authorized officials	

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					may verify authenticity using a simple, inexpensive, and highly portable decoding lens. Similarly, we will be providing 200 decoder lens free of charge to the client. The IPI feature is incorporated into the Photo Image of the current "N" Series Passport of Sri Lanka.	
174.	CR 1.6		A	Yes	Conformance with International Standards: Our ID Card conforms with ISO 7810:2003 and ICAO standards in the areas of physical attributes, durability, stability and resistance.	
175.	CR 1.7		A	Yes	Our card material conforms and satisfy the requirement to withstand the following conditions: • Bending strength (ISO/IEC 10373): 2 - 10 x ISO 7816/1 cycles (= 10,000) • Bending strength (DIN 32753/1): 3 - 30 x ISO 7816/1 cycles (= 30,000) • Torsional strength (ISO/IEC 10373): 2 - 20 x ISO 7816/1 cycles (= 20,000) • Temperature performance - cantilever method (DIN 32 753/1): 70°C - 140 °C • Bond strength (ISO/IEC 7810): ≥6 N/cm	

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					• Light-fastness (DIN 54004, exposure method 2): ≥ 4 Opacity (ISO 7810): ≥ 1.5	
176.	CR 1.8		A	Yes	• The properties of the card materials can ensure sufficient flexibility and flatness of the card during its service life • The card is not detrimental to health with normal use • The chemical resistance corresponds to the requirements of ISO/IEC 7810:1995, tested according to ISO/IEC 10373 • The cards conforms to the specification in ISO/IEC 7810:1995 and are fully operative at relative humidity between 5% and 95% at 25° C, in conformity with ISO/IEC 7816-1:1987	
177.	CR 2.1		A	Yes	All technologies, inclusive of hardware, software workflows etc. used for the production / personalization of ID cards proposed herin are completely independent of the technologies used in the application processing system. The only link between the two system is limited to the transfer of information (i.e. personalization data for card printing and return log / schedule of the personalized card) using a standard data format / communication protocol as specified in the BPR / SRS documents.	

#	Column A	Column B	Column C	Column D	Column E	Column F
	Requirement number	Evaluation Lot number	Evaluation Group	Bidder's response (Yes / No)	Technical description	Ref. to support documents
178.	CR 2.2		A	Yes	The information received for card printing will be kept in a separate server for a period determined by the RPD and it will be destroyed in the presence of authorized RPD staff.	
179.	CR 2.3	Lot 5	AR	Yes	We will ensure that adequate buffer stock of teslin and PET material is maintained from the point of manufacturing to personalization and up to 3 months of stock will be arranged to meet production requirement at RPD locations.	
180.	CR 2.4	Lot 5	AR	Yes	Our proposed ID Card Personalization system is equipped with proper physical security and access control/log mechanisms which are built into the card personalization system. We would also provide adequate mechanisms to ensure proper physical security and access control mechanisms at the card personalization and storage environment / site.	
181.	CD 2.5	Lot 5	AR	Yes	We comply with the requirement to install, maintain and operate a card personalization facility at the RPD HQ and commit to a minimum daily production of 10,000 ID cards.	
182.	WN 1.1	Lot 6	AR	Yes	Implementation of data circuits to sites in Kilinochchi and Mul athivu di stricts ar e subject t o t he s ecurity c learance t hat should be negot iated d uring implementation with RPD. Connectivity t o t he m obile uni ts i s possible at the areas where Mobitel 3.5G coverage is available.	

#	Column A	Column B	Column C	Column D	Column E	Column F
	Requirement number	Evaluation Lot number	Evaluation Group	Bidder's response (Yes / No)	Technical description	Ref. to support documents
183.	WN 1.2	Lot 6	AR	Yes	Not Applicable to SLT	
184.	WN 1.3		A	Yes	Branch office links are scalable to 2Mbps on request. Main link to RPD head office is scalable to 45Mbps on request.	
185.	WN 1.4		A	Yes	Please refer to the cost sheet attached.	Section 7: Project Financial
186.	WN 1.5		A	Yes	An SLA can be signed with SLT along with the contract.	
187.	WN 1.6	Lot 6	AR	Yes	Technical details of the router and the DSU are attached.	
188.	WN 1.7	Lot 6	A	Yes	SLT will own and maintain the WAN up to the branch office router Ethernet port at which the DS office LAN will be connected.	
189.	WN 1.8	Lot 6	AR	Yes	The redundancy for the main link to the RPD head office will be provided on ring topology.	

Section 9: Annexure

Annexure 1: eNIC Project Time Line

Annexure 2: e-NIC Process Defined

    i)   Process A Obtaining Application
    ii)   Process B Application Processing and Record Management
    iii)   Process C Handling Lost Card
    iv)   Process D Query Management

I) Process A : Obtaining of Applications
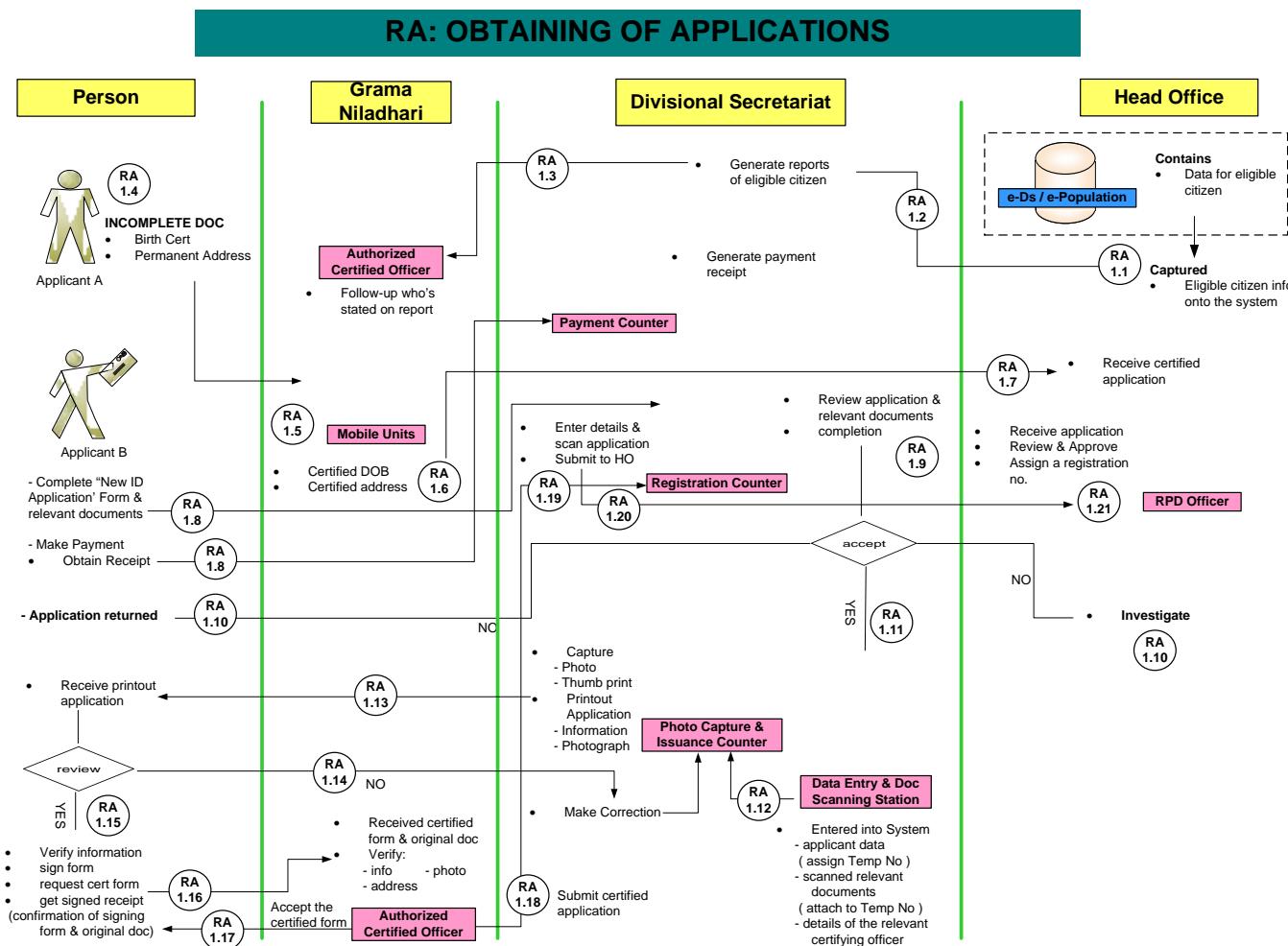
Figure A2-1 Processing of First Application

II)   Process B : Application Processing and Record Management
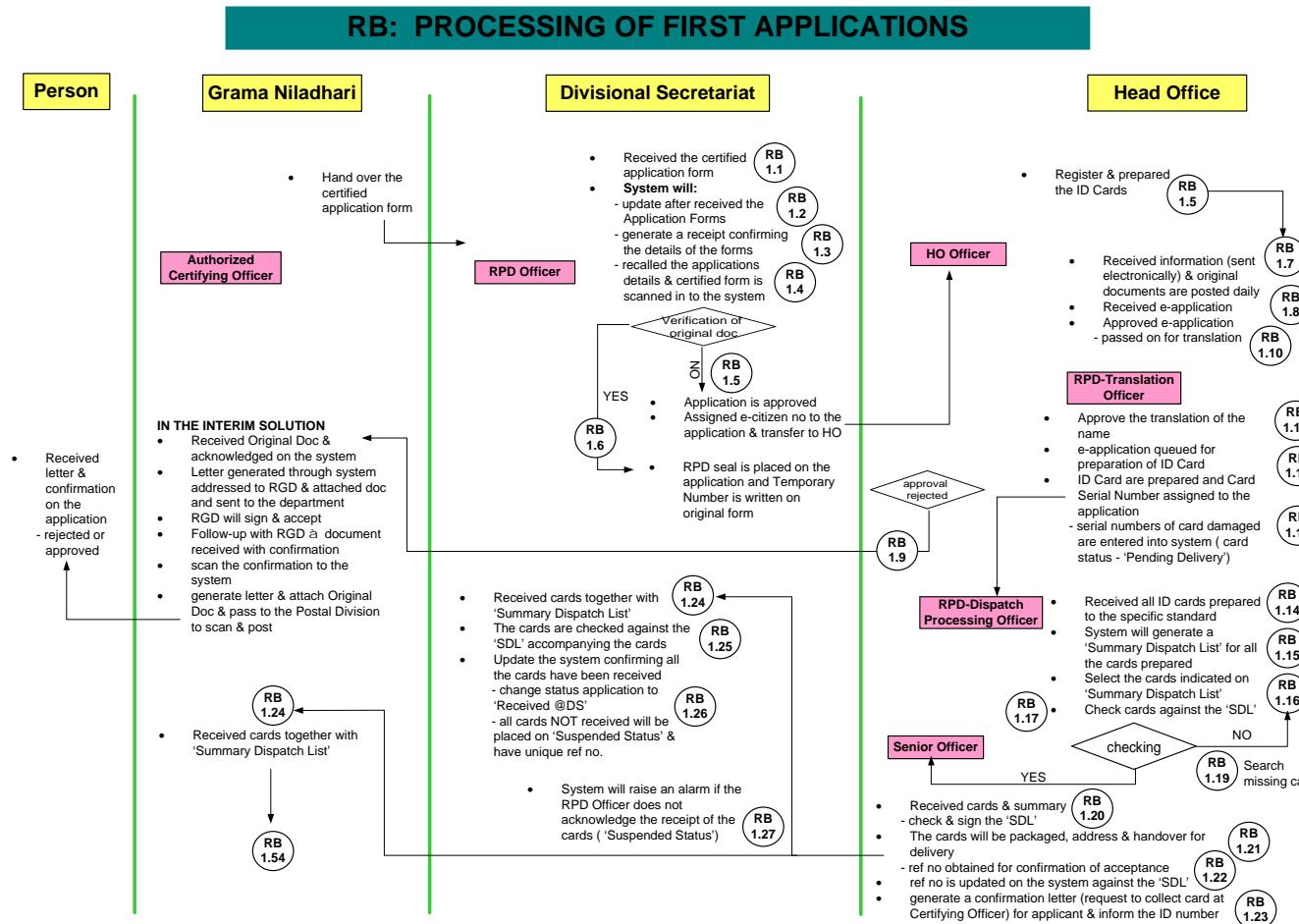
Figure A2-2 Processing of First Application

RB: PROCESSING (DELAYS / NON RECEIPT & STORAGE)
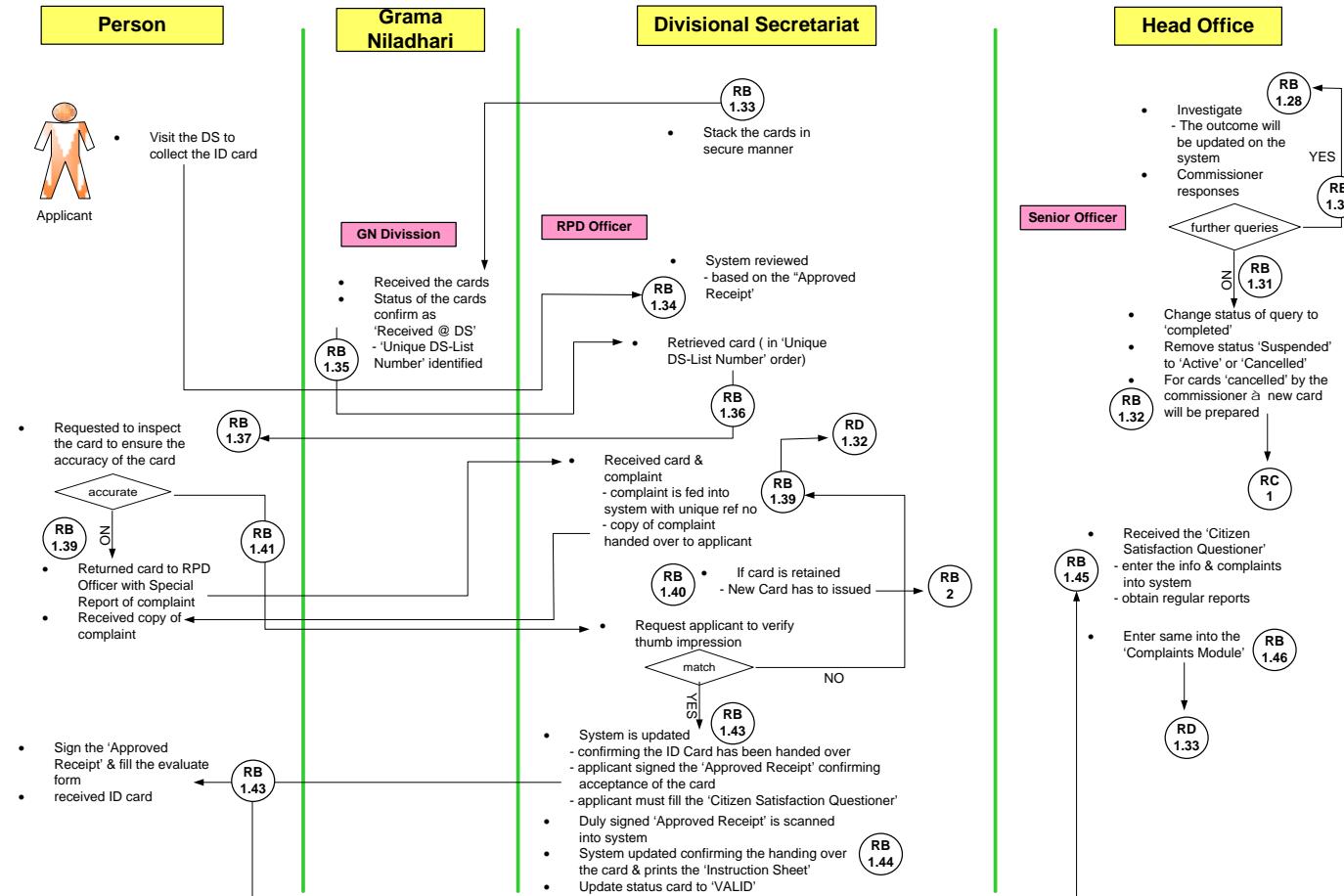
Figure A2-3 Processing of Delays/Non Receipt & Storage

Figure A2-4 Processing of Destruction & Distribution

RB: PROCESSING OF CI & REGULAR RENEWAL APPLICATIONS
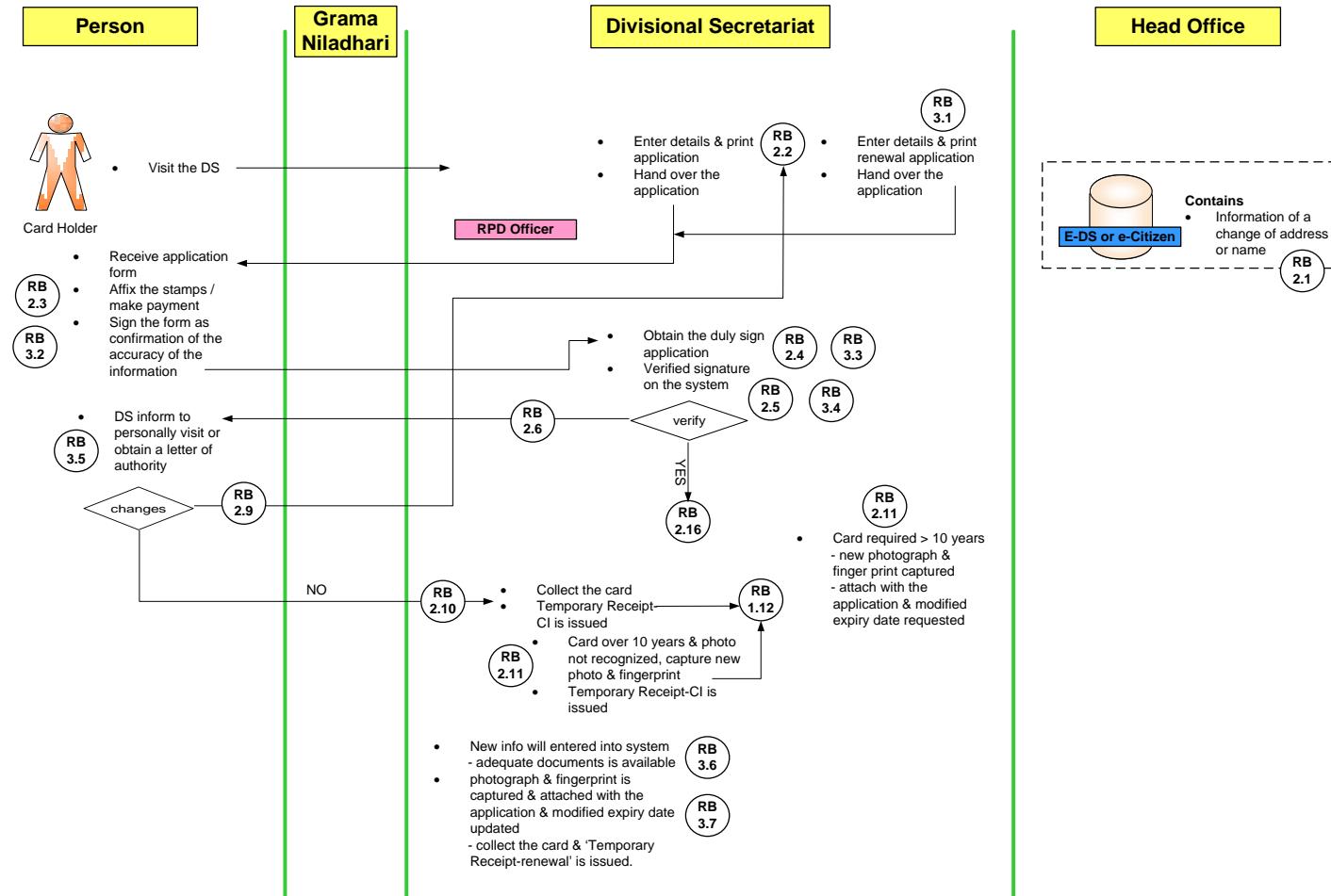
Figure A2-5 Processing of CI & Regular Renewal Application

III)   Process C : Handling of Lost Cards and Updating Information
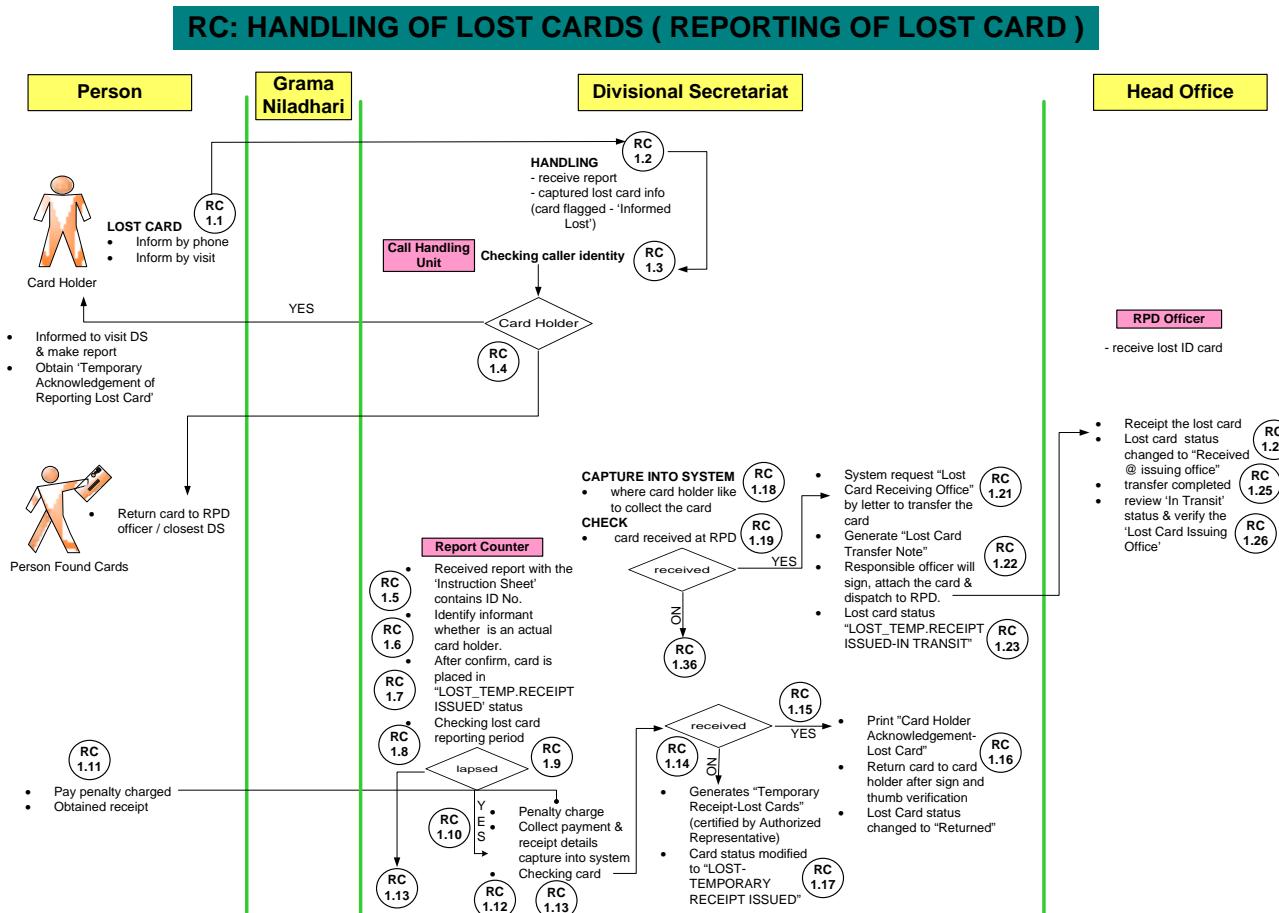
Figure A2-6 Handling of Lost Cards and Updating Information
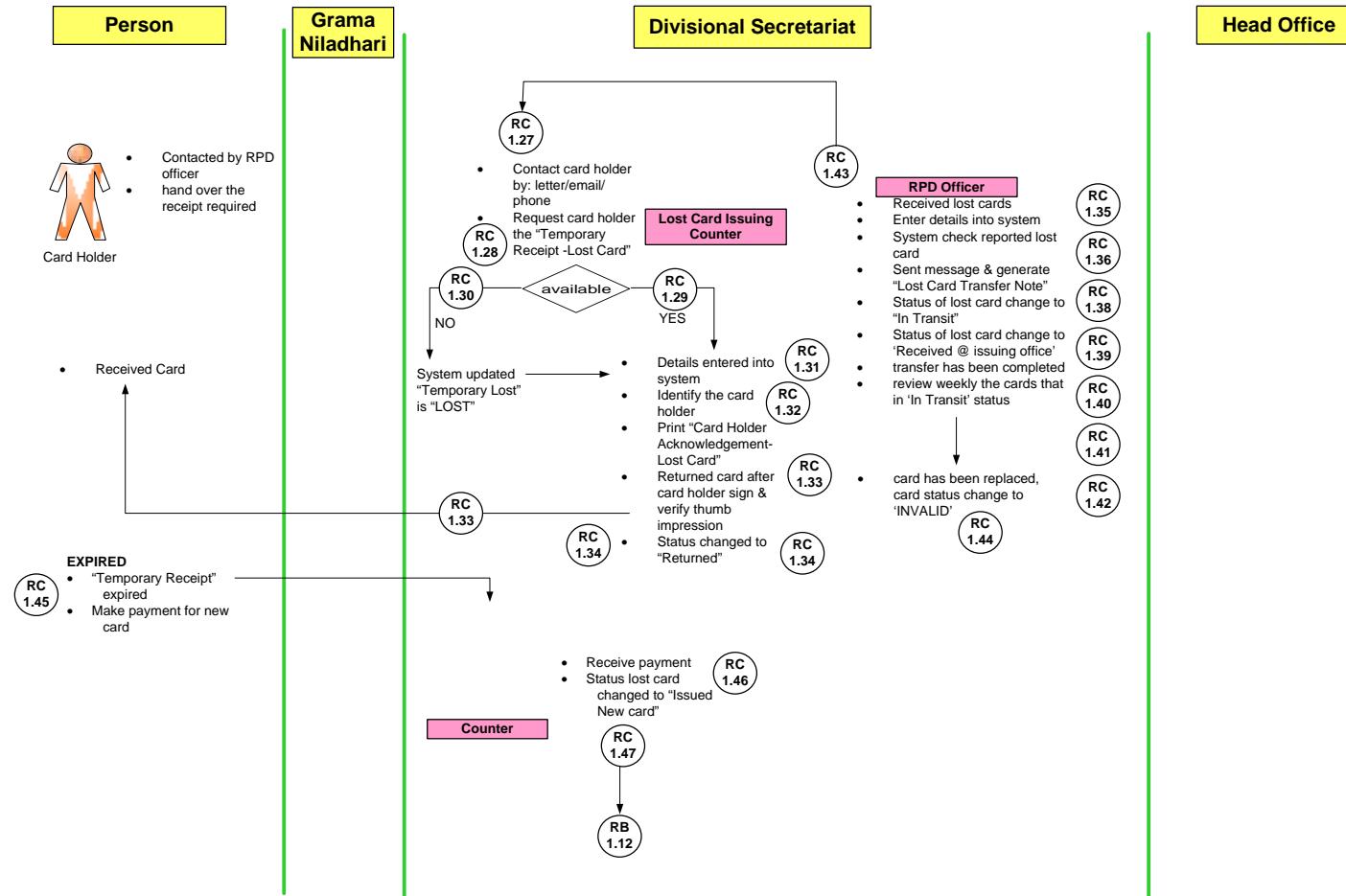
Figure A2-7 Action Taken and receiving of Lost card

RC: PROCESS OF RECORDING THE DEATH OF CARD HOLDER
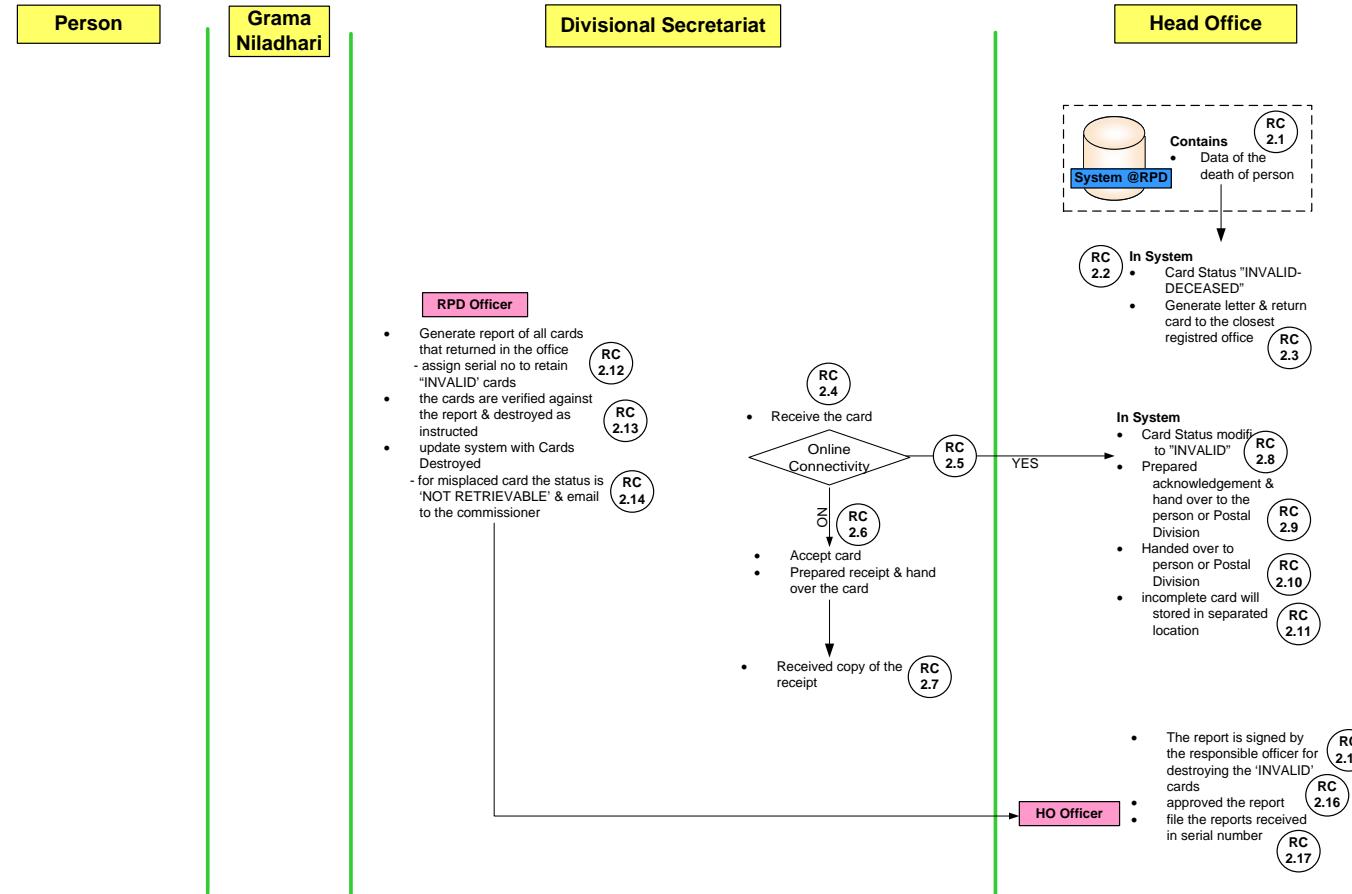

Figure A2-8 Process of Recording the Death of Card Holder

## IV)   Process D : Handling of Customer Queries
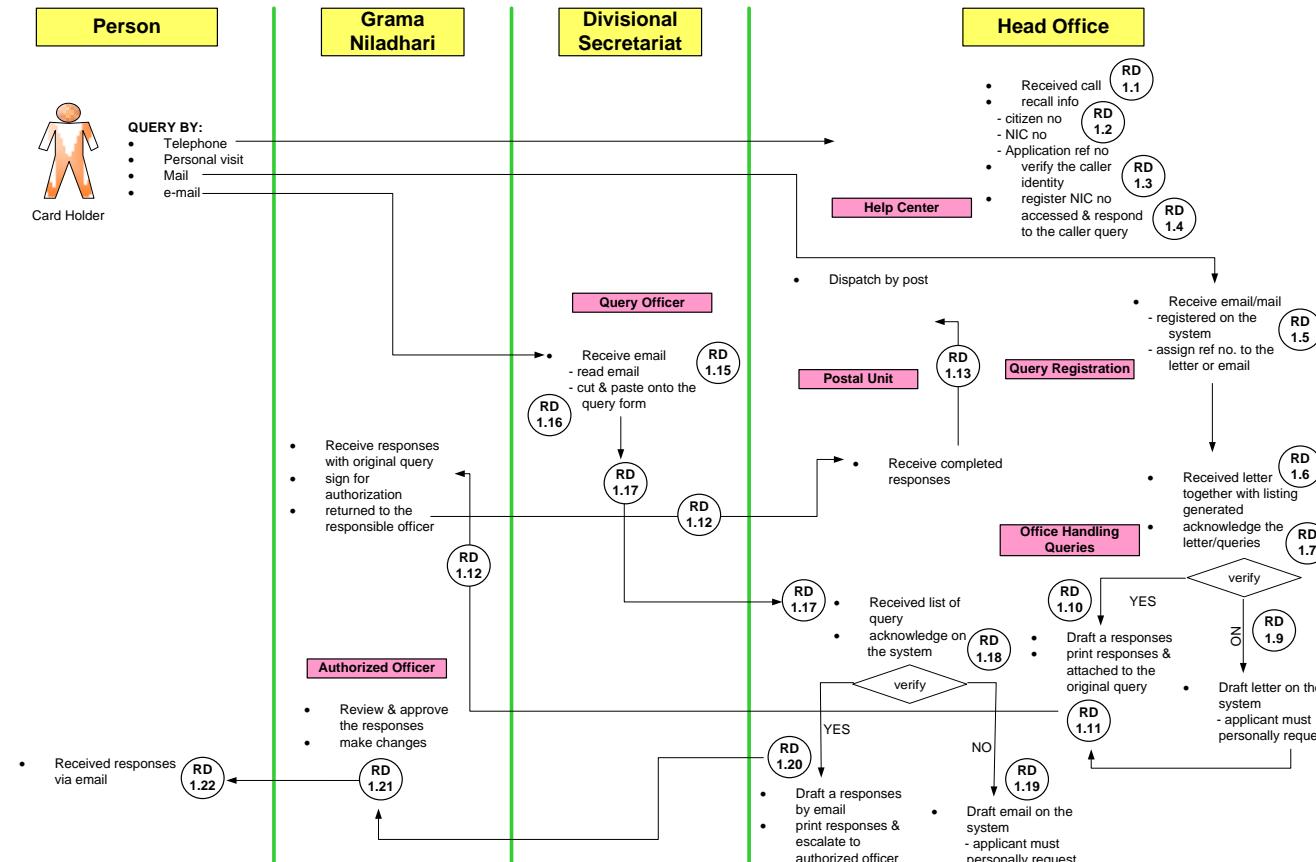
Figure 2-9 Queries on Applications/Renewal/Lost Cards
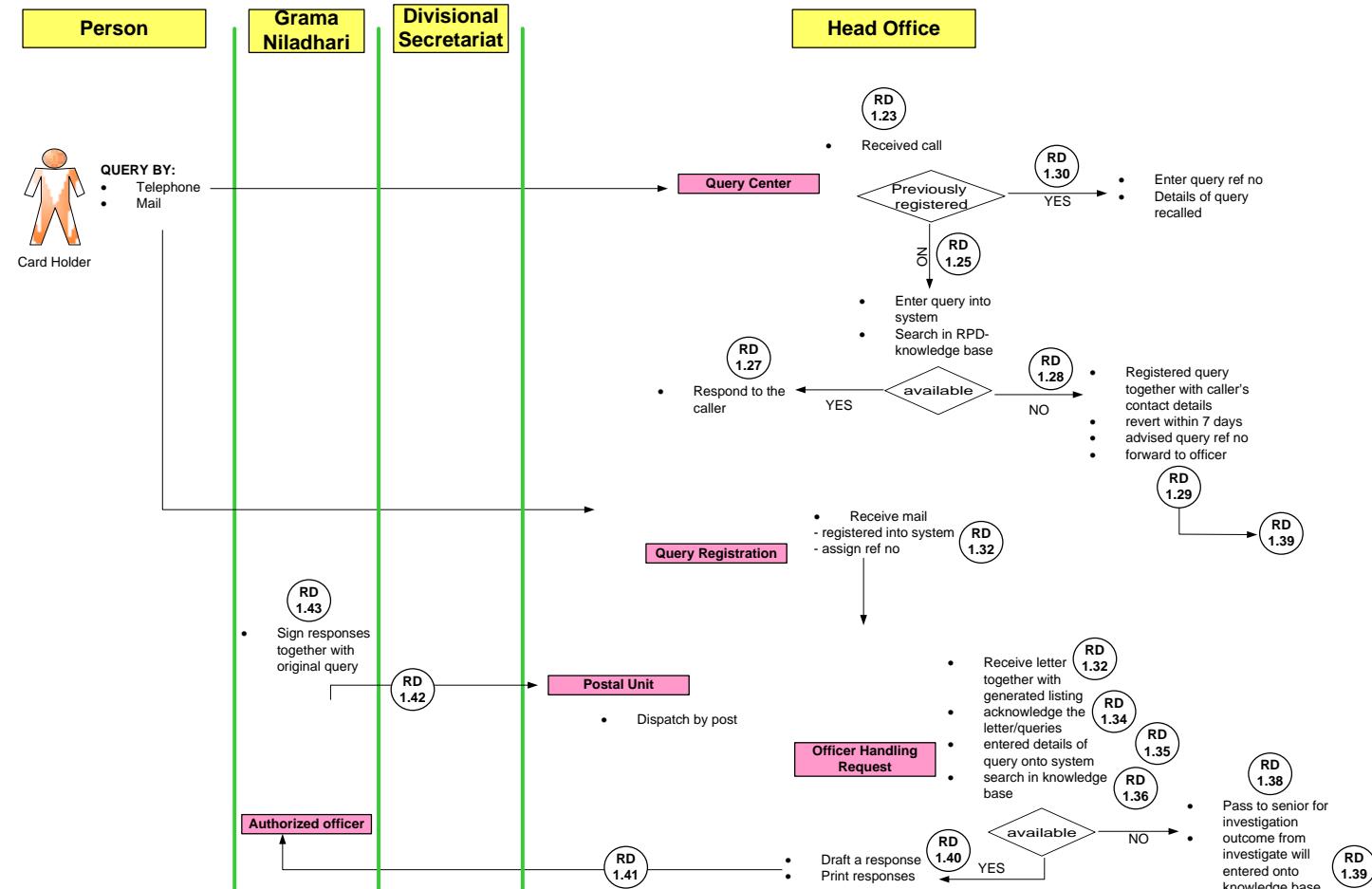
Figure A2-10 Queries Not Related to an Application

RD: QUERIES RELATED TO VERIFICATION OF IDENTITY

Person   **Grama Niladhari**   **Divisional Secretariat**   **Head Office**

Card Holder

REQUEST BY:
- Telephone
- in-person

RD 1.44

Help Center

- Received call regarding the verification of card holder
- verify the caller identity **RD 1.45**
- respond to the callers query **RD 1.46**
- update Id no queried **RD 1.47**

- Completed form received **RD 1.48**
- Registered request for verification **RD 1.49**
  - generate ref no
- Request payment "Verification Fee" **RD 1.50**

Acceptance Counter

- Receipt details entered onto system **RD 1.52**
- Information display **RD 1.53**
  - assistant confirms info is correct or not
- Generate a report based on the verified Ic No **RD 1.54**
- Sign report & give to the person requesting **RD 1.55**
- Original application field in reg no order **RD 1.56**
- provide statement of income **RD 1.57**

- Complete requested form
- Pays the "Verification Fee" **RD 1.51**
- Obtain receipt

RD 1.51

- Received payment
- Generate receipt

**Payment Counter**

- Get report

Figure A2-11 Queries related to Verification of Identity

Annexure 3: Technical Drawing

Annexure 4: Mobile Units Layout
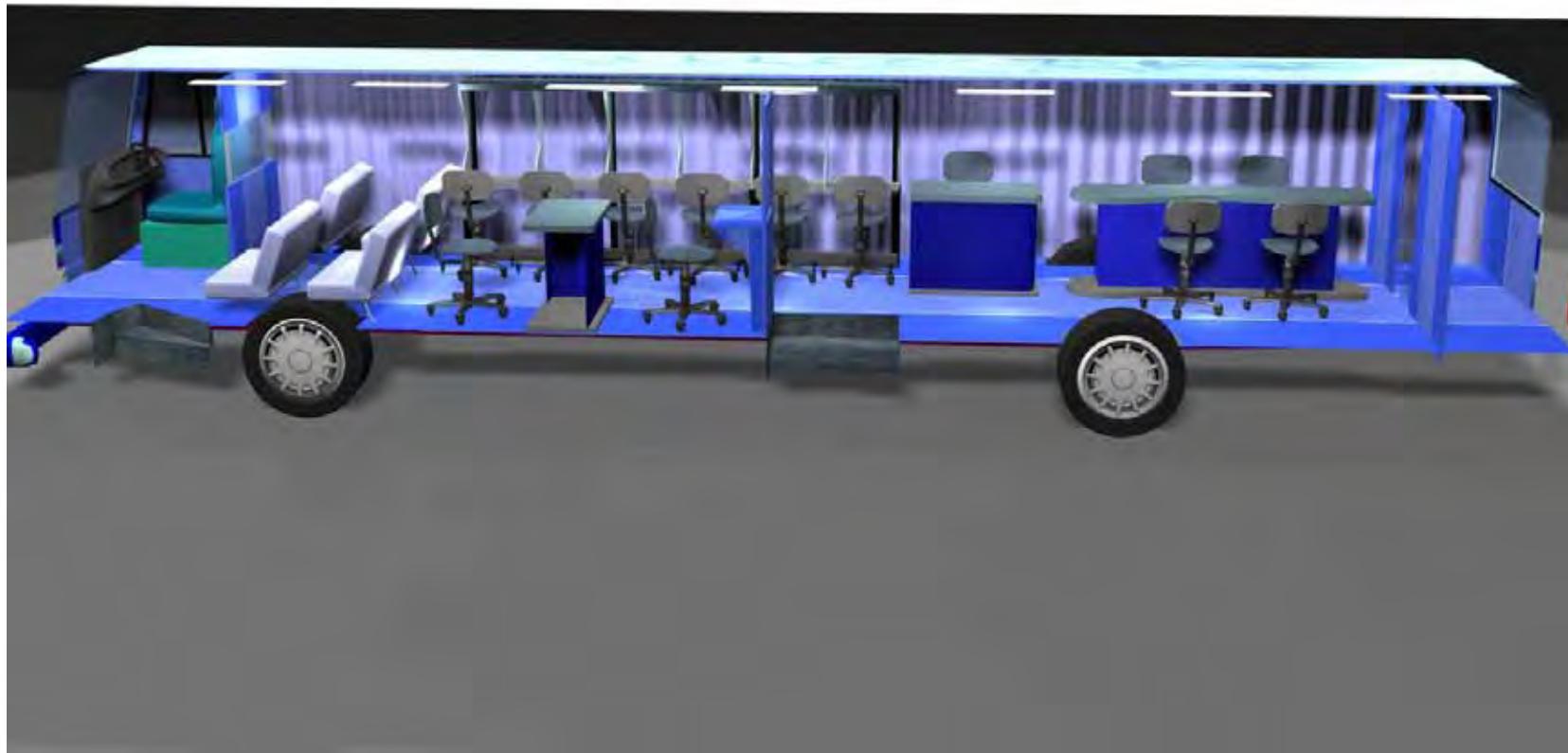
1. Mobile Type A
2. Mobile Type B
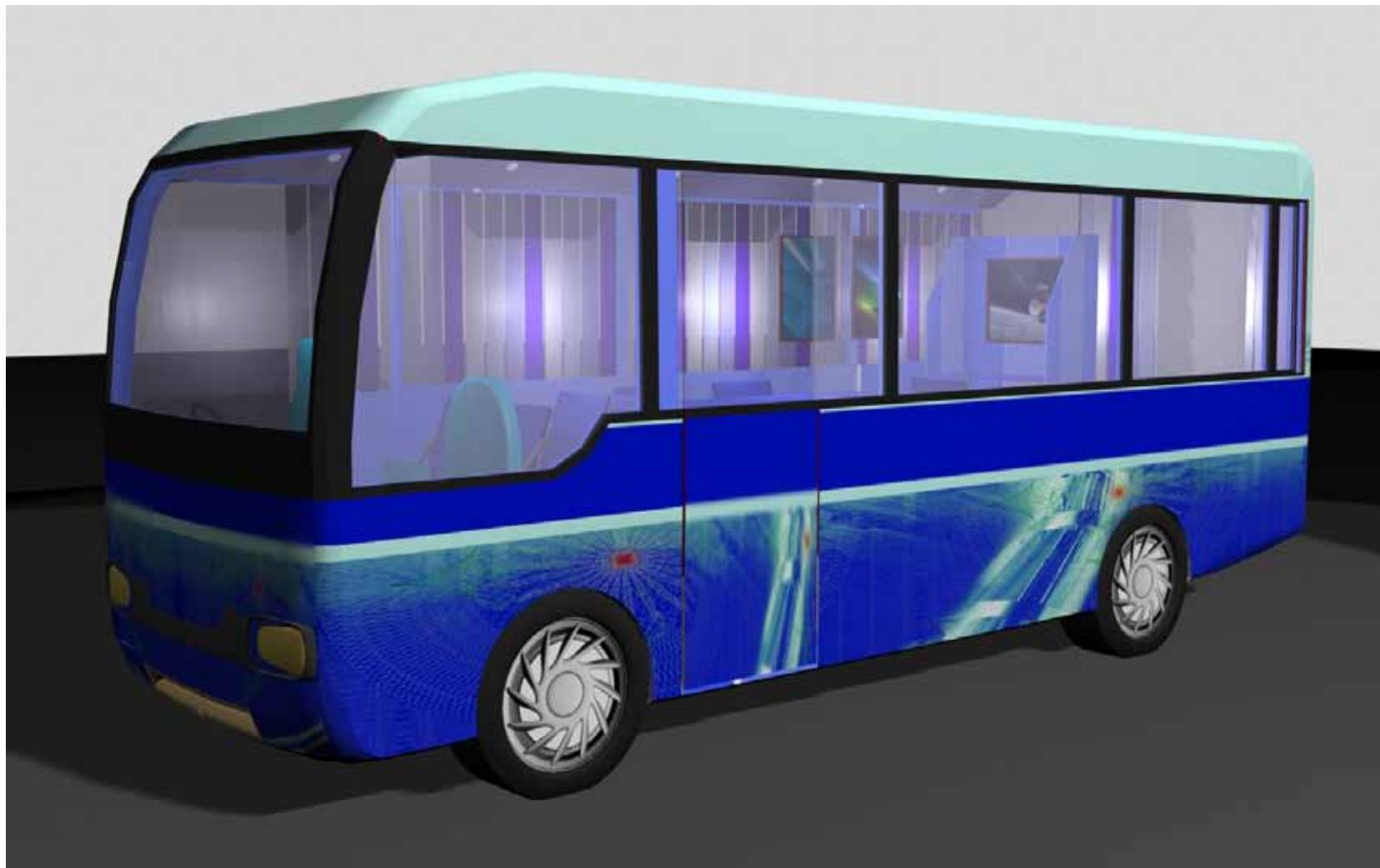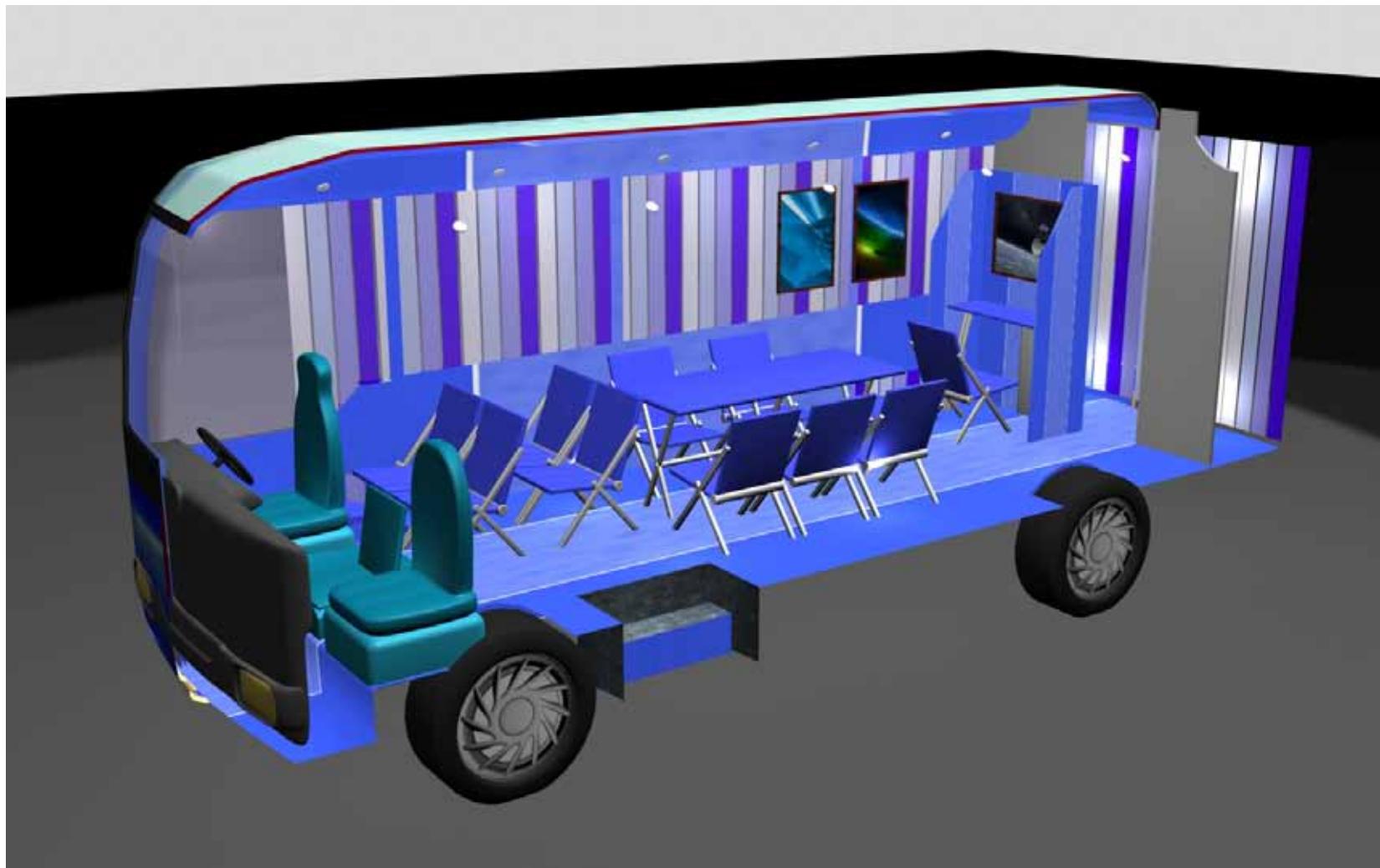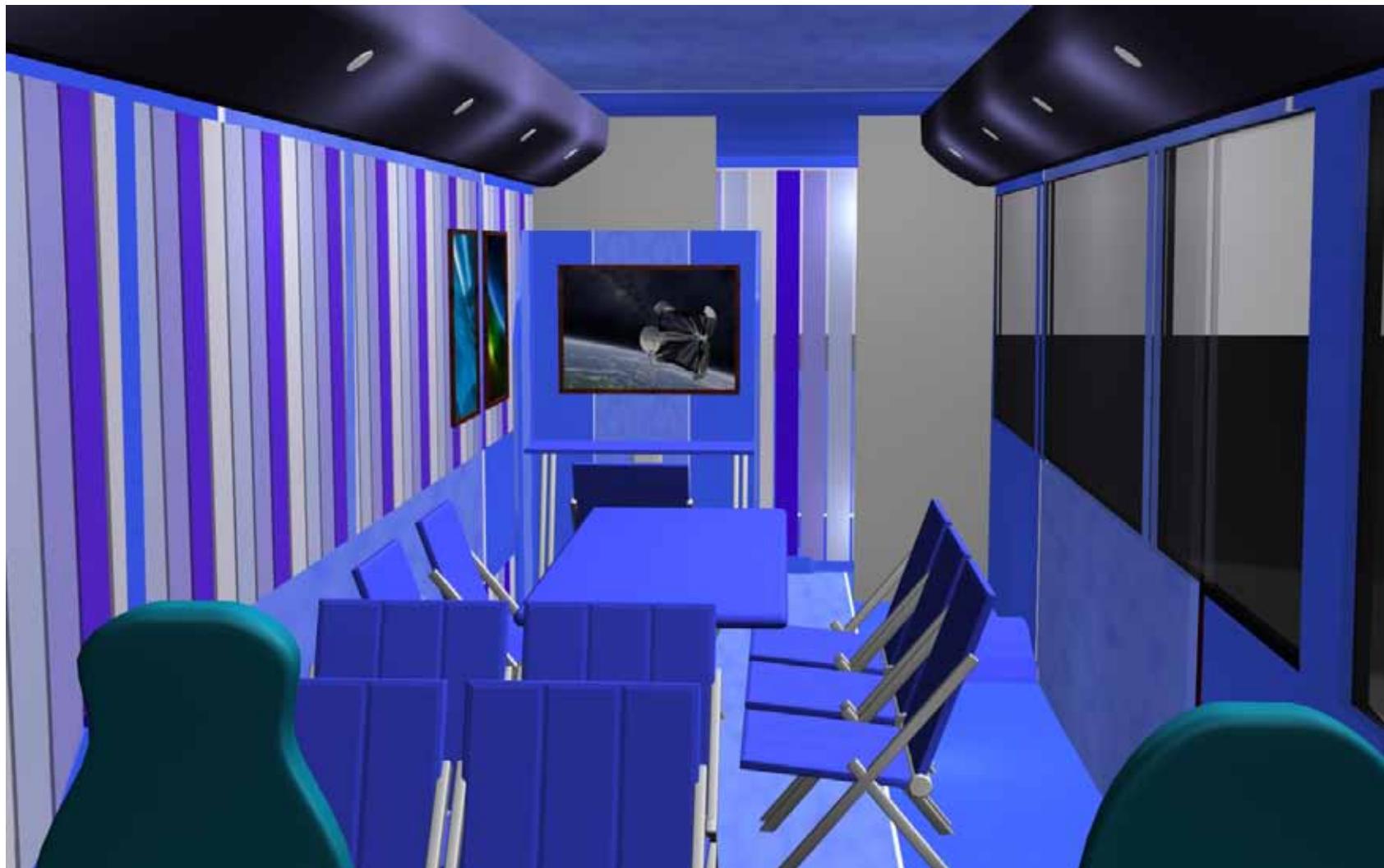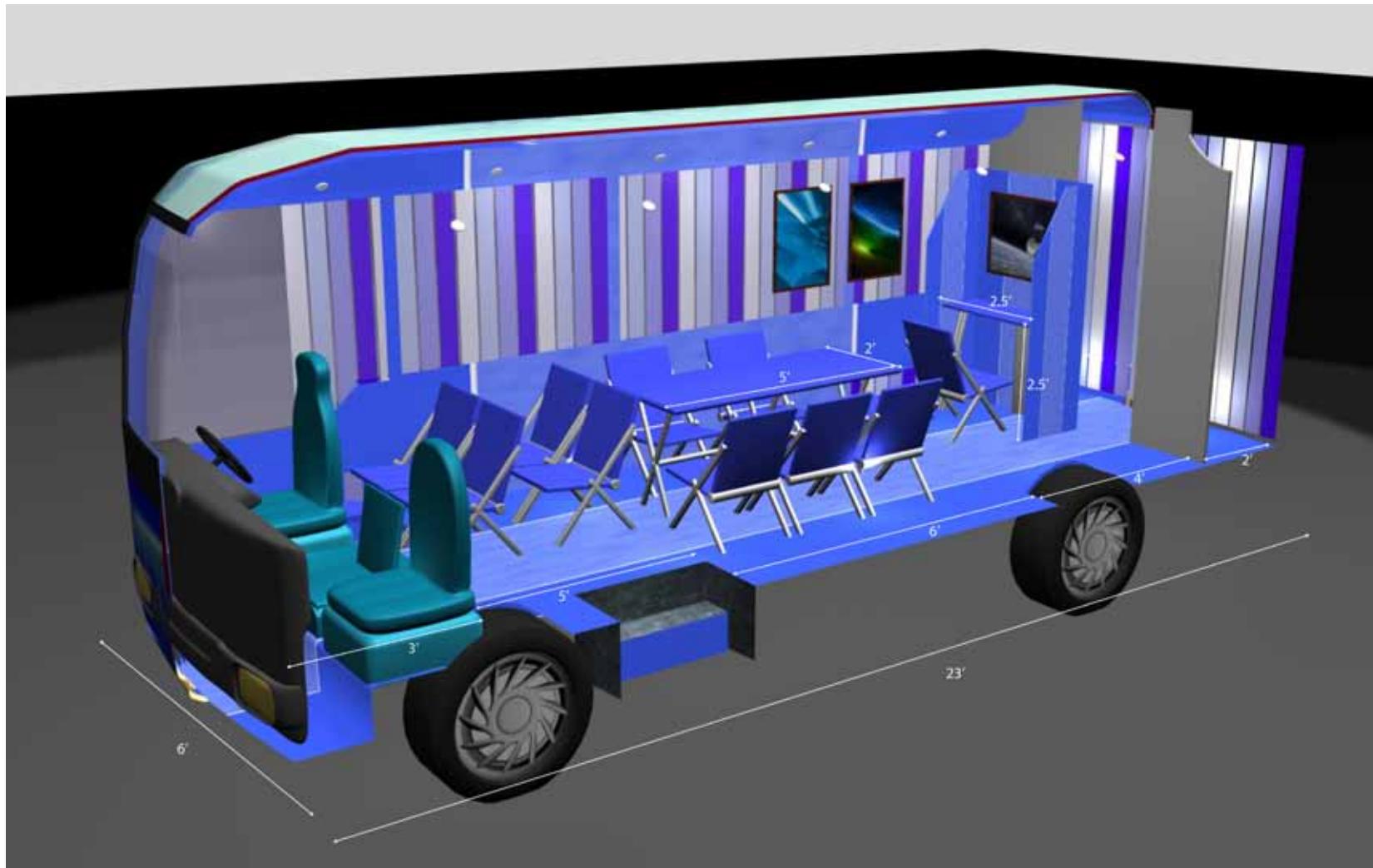
Annexure 5: Divisional Secretariat

Annexure 6: General Contract

Annexure 7: Accreditation Letter

i.   National Registration Department of Malaysia

ii.   Immigration Department of Malaysia

iii. KTP

iv.   EPIC

v.   DIE Sri Lanka