



IDENTIFICATION

Department	Position Title	
Education, Culture and Employment	Manager Application Development	
Position Number(s)	Community	Division
71-2880	Yellowknife	Planning, Research and Evaluation

PURPOSE OF THE POSITION

The Manager Application Development sets and enforces application development standards related to the design, development, testing, and deployment of Departmental software systems to ensure the continuity of critical Education, Culture and Employment (ECE) applications used to deliver programs and services to the public. They are also responsible for the leadership and oversight of information, communication and technology (ICT) small-scale projects for the Department. This individual will apply proven leadership, communication, and problem-solving skills to assure the quality and delivery of application improvements in order to maximize the benefit of system investments.

SCOPE

The incumbent reports to the Director, Planning, Research and Evaluation (PRE) to lead the Application Development unit and ECE Information Management Services (IMS) as a whole throughout the software development lifecycle (SDLC) to deliver quality software products and service to ECE's Program Areas. The incumbent leads four (4) Programmer/System Analysts and works directly with other members of the Department as required to ensure technology solutions meet identified needs. The incumbent is expected to lead by example and provide exceptional client service to headquarters and regional staff through a proven understanding of software and hardware, in conjunction with exceptional analytical skills, to deliver appropriate, effective and efficient service to support all ECE information, communication and technology systems. The incumbent is responsible for an Operational and Maintenance (O&M) budget of \$6.5M and has spending authority of \$100,000.

The incumbent is primarily responsible for the processes supporting application development functions in the Department as well as the frameworks used to conduct those activities through the direction of the PRE Director. They are also responsible for leading and enforcing

release management, change management, and quality assurance, standards, documentation, processes and tools used by the IMS team to support and maintain technology systems for the Department. This position works directly with, and has a functional reporting relationship to Senior Managers including the Assistant Deputy Ministers and Directors of the Department, as well as stakeholders from Education Authorities, Aurora College and Regional Service Centres, in conducting application, service and asset management in the support of ECE owned technology. The incumbent, by virtue of the position, has total and unrestricted access to all client and employee personal, financial and banking data in the database systems. This data may also include criminal, civil, health, or psychological information or evaluations. They are responsible for the security, monitoring, and auditing of access to all Department data. The incumbent has considerable latitude to make decisions and must have highly effective decision-making and problem-solving skills in order to ensure that systems are designed and developed to meet complex Departmental needs. Failure to provide adequate services and/or design, develop and safeguard technology systems may result in serious consequences for the Department and the government as a whole.

Five critical systems in the application portfolio include, the Case Management & Administrative System (CMAS), Oracle Business Intelligence Enterprise Edition (OBIEE) solution, MyECE web framework and applications, PowerSchool, and Student Data Interchange (SDI).

CMAS, originally developed in 1999 using a custom Java architecture, is a complex and mission critical system. It is the PeopleSoft of ECE. CMAS processes payments totaling over \$130 million annually, and, another approximately \$140 million in school board funding is directly driven by enrollment reports created from CMAS data. The CMAS system is custom-built and is accessed daily by 12 ECE Program Areas and other GNWT departments. The system must have 7am-7pm availability Monday to Friday and can be accessed by approximately 800-1,000 clients via MyECE outside of core office hours. Approximately 180+ staff rely on system availability and functionality to deliver critical ECE services to the public. CMAS and its modules represent over 72% of the application portfolio at ECE.

CMAS integrates with OBIEE, a near real-time interactive data analysis and reporting tool with 4 software applications, and MyECE, a web technology framework with 2 software applications. Both OBIEE and MyECE are new additions since 2012 that integrate with CMAS' approximate 30 modules and 300 reports.

PowerSchool, also implemented in 2012, is ECE's Kindergarten to Grade 12 Student Information System (SIS) to manage marks, attendance, photos, incidents, disciplinary actions, courses, and report cards. It is used by approximately 1,200 teachers daily within all schools and Education Authorities across the Northwest Territories (NWT). SDI, an automated data interchange software application between ECE and Alberta Department of Education, sends diploma exam and other student information to Alberta through web-based technologies five times per year.

Organizational Structure

ECE has a complex and multi-faceted mandate within the Government of the Northwest Territories (GNWT). Through its many programs and services ECE impacts the lives of NWT residents across lifespans through income security, early childhood, adult education, labour-market development, culture, heritage and official languages. The Department has three corporate services division: Policy, Legislation and Communications (PLC); Planning, Research and Evaluation (PRE); and Finance and Capital Planning (FCP). Together, these divisions enhance intradepartmental collaboration through coordinated activities and the setting of standards and expectations.

The PRE division is composed of 3 units:

1. Research and Program Evaluation Services
2. Information Management Services
3. ATIPP and Records Management

Collectively, PRE plays a significant role providing corporate leadership to the Deputy Minister, Assistant Deputy Minister, Directors, and program staff in order to ensure:

- lateral, systems-wide thinking in support of program integration;
- holistic and multi-disciplinary approaches to complex problem areas;
- practical accountability mechanisms that generate meaningful data and adherence to the Department's legislation, directives, and policies;
- leaner, more efficient service delivery through evidence-based decision making; and
- transparent communication in support of public accountability.

Collectively, PRE collaborates with all levels of the education system to provide strategic and evidence-based research, planning, implementation, and evaluation services. Through these services, PRE staff are mandated to support sustainable programs and technology solutions through the following functions:

- Departmental strategic and business planning;
- Statistical analysis and research;
- Program monitoring and evaluation;
- Performance measurement and target development;
- Project management;
- Business analysis;
- Risk management;
- Information systems and technology;
- Information management; and
- ATIPP and records management.

RESPONSIBILITIES

1. Plan and manage the human and financial resources of the unit to meet divisional and Departmental objectives.

- In consultation with the Director, complete O&M budget and expenditure functions within the unit including, tracking actual spend, committed funds and budget forecasts.
- In consultation with the Director, complete human resource functions within the unit including staffing, performance reviews, and discipline.
- Ensure unit staff have access to necessary resources, supplies, equipment and information.
- Inform staff about governmental, Departmental and divisional priorities.
- Develop annual technology work plans and schedules based on the Department business and work plans that establishes short and long term objectives for the unit.
- Manage numerous outside suppliers and contractors who perform Information Systems functions.
- Negotiate, manage and organize all information systems related product and service contracts.
- Participate on technology related interdepartmental and intergovernmental committees as required.
- Identify and implement individualized training requirements and opportunities for staff. Acts as a mentor in staff career path planning to ensure the individual member's professional development is supported and funded by ECE, to provide better staff retention and morale.
- Ensure industry and GWNT standards are used, and with input from the OCIO, develops, updates and ensures Departmental standards are followed in all areas of ECE IMS.
- Acts as the Director of PRE, Manager Business Analysis & Projects, or Manager Application and Data Maintenance, as required.

2. Lead the custom application development functions for the Department.

- Accountable for code versioning and synchronizing repositories to ensure ECE's intellectual and technology assets are secure and quality is maintained.
- Oversee the design, development, and deployment of new applications and enhancements to existing software applications to ensure the priorities are based on business needs.
- Ensure that systems are well defined, developed, tested and implemented to meet the information needs of ECE IS clients. Ensure constant communication with stakeholders in the Department and maintains a very hands on approach to monitoring systems development and implementation plans and strategies.
- Ensure that any new software integration into company systems or development projects meets functional, technical and performance requirements, system compliance, and interface specifications.
- Lead code reviews to identify potential problem areas, ensure quality standards are maintained, and make the appropriate recommendations.

- Research and make recommendations on software products and services in support of procurement and development efforts.
- Manage and provide technical leadership and direction for the application development team in support of business operations.
- Liaise with network administrators and software engineers to assist with quality assurance, program logic, and data processing.
- Ensure that development team follows established change management protocols.

3. Lead application release planning exercises for the Department.

- Consult with divisions, Aurora College, Education Authorities, and Regional Service Centres within the Department to identify technology systems, internet and intranet needs in the short and long-term.
- In consultation with the Director, ensure software release planning aligns to and enables Departmental work plan priorities and outcomes in collaboration with senior management.
- Collaborate with Manager Application Data & Maintenance and Program Area Directors and Managers to prioritize service requests and incidents requiring application development services into quarterly software releases.
- Collaborate with Manager of Business Analysis and Projects to schedule project delivery requiring application development services into quarterly releases.
- Provide expert advice and guidance to the Director on current industry technology trends and solutions. Conduct in-depth technology research and analysis and make recommendations concerning current and future systems developments.
- Communicate and collaborate with the Director and ECE senior management work processes and timelines required to deliver application defects and enhancements to enterprise systems that enable Program Area operational work plans and strategic Departmental commitments to be achieved.

4. Lead, develop and enforce technology standards and processes for ECE IMS.

- Establish ECE standards, processes and tools for application development, release management, and environment management for the development, test, train, and production environments.
- Lead the development, establishment, and enforcement of quality assurance measures and testing standards for new applications, products, and/or enhancements to existing applications throughout their development/product lifecycles.
- Develop technical change control processes, practices, and guidelines for new and existing technologies.
- Develop and implement ECE IMS specific procedures and processes to align with and implement Office of the Chief Information Officer ICT Policy.

5. Perform custom application development duties, as required.

- Participate as required in joint application design sessions with Business Analysts and Subject Matter Experts as required.
- Develop new or modify existing code to meet functional requirements and technical design specification for user-interface, client and server design.

- Work with the Business Analyst to create the test plan, perform regression testing, and prepare/maintain test scripts for the application.
- Conduct unit, system and integration testing to meet technical design specification and identify and log defects found during each testing cycle. Use tools and follow standards for quality control/quality assurance.
- Conduct performance, security or stress testing to non-functional requirements.
- Prepare release packages comprised of release notes, database scripts, and executable files.
- Follow established change management protocols, perform a change impact analysis, prepare a roll-back strategy, and verify the change once deployed in production.
- Use software version control tools; maintain code repositories and development workflow tools to ECE standards.
- Follow code versioning and synchronizing for development of multiple environments.
- Maintain development, test, and training environments to approved standards and follows the configuration management process.
- Develop custom solutions to integrate/interface and move data between systems.

WORKING CONDITIONS

Physical Demands

The incumbent is required to sit or stand for long periods during work hours including presentations, in meetings, and group or one-on-one planning sessions. The incumbent may frequently sit up to 4 hours per day at a computer analyzing data. Eyestrain, back discomfort and keyboard-induced tensions are the most common problems.

Environmental Conditions

There are requirements for visits to other offices and remote sites for consultation, review, training, and work outside the office environment. There is exposure to noise from servers when working in the data centre (1-2 hours per week). The position may require travel in small aircraft into small communities.

Sensory Demands

The incumbent may spend long periods of intense concentration up to 4 hours per day reviewing and synthesizing data into information. There is a frequent need for accurate rapid visual judgments when providing time-sensitive data. Establishing priorities and balancing these demands is often difficult. Pressure to balance duties, the volume of work and the criticality of information systems and accuracy of data contributes to job stress.

Mental Demands

Mental fatigue is extremely common as a result of a requirement of a heavy workload; frequent need for intense analytical work; project management that is impacted by tight deadlines that are beyond the control of the incumbent; and that the work may have financial implications to the Department or clients if delays or inaccurate data occurs. Imposed,

unexpected, and competing demands frequently cause high levels of stress and extreme mental fatigue in order to provide rapid response and immediate reprioritization of workload to ensure 24/7 system availability. Long extended working hours including evenings and weekends may be required to supervise the implementation or enhancement of systems during non-business hours. Mental stress may also be induced as a result of the requirement to continually keep up to date with industry standards and learn new technologies and the use of new or enhanced products. The incumbent must be frequently available via a Departmental cell phone including, after regular working hours and weekends. Weekend and evening overtime for after-hours system implementation are required (4-8 hours per day), so as to not interrupt the daily activities of the rest of the Department(s), school(s) and school board(s).

KNOWLEDGE, SKILLS AND ABILITIES

- Expert knowledge of object orientated programming, web-front end programming, database programming and Business Intelligence.
- Expert knowledge in systems architecture, data security, data communication standards, hardware, server operating systems, and network setup and protocols.
- Expert knowledge of technology systems design, development, implementation and upgrade.
- Expert knowledge of the GNWT's Systems Implementation Methodology (SIM) and the Systems Development Life Cycle (SDLC) methodology.
- Expert knowledge of software development and hardware capabilities and requirements including delivery platform/technical architecture.
- Working knowledge of build automation, version control, and testing tools.
- Working knowledge of Oracle database, data modelling, and data relationships models.
- Exceptional customer services skills and orientation. Proven record of providing quality end-user support through proven verbal and written communication skills.
- Excellent supervisory and leadership skills based on a history of successful software implementations.
- Excellent time management with the ability to work with short deadlines, work collaboratively with other members of the ECE IMS team, and be able to work well with end users.
- Excellent priority setting and organizational skills including the ability to manage multiple projects efficiently and effectively using project management tools and methods.
- Excellent verbal and presentation communications skills including the ability to translate complex technical information into plain language for Departmental Senior Management and staff.
- Excellent written communications skills including the ability to develop complex technology strategic and business plans in plain language.
- Proven team leadership skills including the ability to delegate and direct contractors and project staff in a positive, innovative and collaborative manner.
- Ability to develop technical and operational standards, protocols, policies and procedures.
- Ability to plan and schedule application releases for ECE owned applications and servers.

- Ability to conduct research into technology related issues and products.
- Ability to prepare project budgets and timelines, manage staff and contractors and conduct application testing and commissioning.
- Ability to lead projects using project management skills and experience.
- Ability to prepare technical specifications and proposals and review submissions.
- Ability to prepare and follow technical change management processes.

Typically, the above qualifications would be attained by:

The required level of knowledge, skills and ability is typically acquired through the completion of a University Degree in Computer Science or Information Systems Management and at least 6 years of experience in the Information Technology industry including at least 3 years in application development and at least 2 years managing staff/teams, or, computer or information systems related diploma and 8 years' experience of which 3 years in application development and least 2 years managing staff/teams.

A combination of 10 years of education and directly related experience would be considered as an equivalency.

ADDITIONAL REQUIREMENTS

Position Security

No criminal records check required
 Position of Trust – criminal records check required
 Highly sensitive position – requires verification of identity and a criminal records check

French Language

French required. Level required for this designated position is:

ORAL EXPRESSION AND COMPREHENSION:

Basic (B) Intermediate (I) Advanced (A)

READING COMPREHENSION:

Basic (B) Intermediate (I) Advanced (A)

WRITING SKILLS:

Basic (B) Intermediate (I) Advanced (A)

French Preferred

Aboriginal Language Choose a language:

Required
 Preferred