



State of Montana

Office Of Public Instruction
IT Strategic Plan 2014

1. Executive Summary

The IT Division has experienced dramatic growth of its supported environment in the past three to four years. The time has now come to effectively leverage the investments made and streamline the IT operations in order to provide quicker, more cost effective services to the agency.

Over the last biennium, the OPI has introduced a number of significant new systems including the Direct Certification system, the Data Warehouse (GEMS) and a new educator licensure systems (MSEIS). These systems have become integral to how the OPI collects and reports data and conducts its day to day operations. To a large extent, these products were put in place by temporary project teams. In order to maintain and enhance these systems the OPI needs additional IT staff. Without staff to maintain these systems they will quickly become outdated and will not be able to produce reports based on current data.

The IT Division will be involved in only one major technology effort – the K-20 Data project. The majority of IT resources will be used to enhance existing systems, consolidate IT offerings and modernize the software used within the agency.

The agency Strategic Directions do not specifically mention IT projects, but a stable, robust technology environment is required for all agency work including the work described in the Strategic Directives.

2. Environment, Success, and Capabilities

The OPI recently adopted a set of Strategic Directions for the agency (see attachment A). In order to meet these goals and to perform the day to day activities of the agency the IT Division has the following goals:

- Develop a stable, robust hardware environment to support the activities of the agency
- Devote development resources to the maintenance and enhancement of OPI developed systems
- Provide the environment, tools and processes needed to accurately analyze and report the data the agency collects
- Provide the tools needed to effectively communicate with employees and constituents across the state.

3. IT Contributions and Strategies

The OPI IT Division supports all divisions within the OPI. All OPI employees depend on stable, effective systems to perform their job functions. Most IT functions are seen as a service that always needs to be available and ‘on’. The OPI has pursued this by managing their own hardware and a network services bureau dedicated to providing IT resources for the agency.

The OPI also maintains a large portfolio on in-house written applications. The Development team is dedicated to maintaining these applications and modifying them as need to support the ever changing regulatory environment.

Finally, the OPI undertakes large IT projects from time to time. These projects tend to be grant funded and use third party resources or resources hired specifically for the project. The IT Division staffs these projects and typically provides oversight of the efforts.

All of these efforts tie to all of the OPI business goals by providing the tools needed to produce the reporting, control the funding and provide other technical resources to accomplish the agencies mission.

4. IT Principles

The OPI adopts the IT principles as outlined in the State of Montana's Strategic Plan:

- Resources and funding will be allocated to the IT projects that contribute the greatest net value and benefit to Montana stakeholders.
- Unwarranted duplication will be minimized by sharing data, IT infrastructure, systems, applications and IT services.
- Montana will use shared inter-state systems to minimize IT expenditures, improve service delivery and accelerate service implementation.
- IT will be used to provide educational opportunities, create quality jobs, a favorable business climate, improve government, protect individual privacy and protect the privacy of IT information.
- IT resources will be used in an organized, deliberative and cost-effective manner.
- IT systems will provide delivery channels that allow citizens to determine when, where, and how they interact with state agencies.
- Mitigation of risks is a priority for protecting individual privacy and the privacy of IT systems information.

Additionally, the OPI follows the following principles:

- The security of student data is of primary importance and should be addressed prior to all other considerations.
- Existing solutions within the agency will be utilized prior to exploring new or competing solutions.
- When possible, the IT Division will cross train staff to ensure depth of knowledge on products used or developed by the OPI.
- The OPI will consolidate its product offerings and platforms to make most effective use of its IT resources.

5. IT Governance

The OPI maintains a Data Governance process to control what data the agency collects, how it stores this data and how the data is presented to the general public. The Data Governance Council does not directly control IT activities and projects, but has a direct impact on the scope of projects. The Data Governance Council is required to review any IT activity that involves the collection of new data.

Large IT projects are controlled via a Project Leadership Team (PLT). The PLT typically involves the project manager, the senior management sponsor, the program owner and the IT Division Administrator. The PLT approves the scope of the project, provides official signoff on deliverables and serves as the escalation point for project decisions.

6. IT Financial Management

The OPI Information Technology Division is treated as a cost center of the OPI. The cost centers fund the personal services and operating expenses for in-house computer systems and network analysts or contractors responsible for the development and maintenance of OPI's applications. Cost centers are funded with state, federal or in some instances proprietary dollars (indirect costs).

The OPI maintains over 80 applications which are used to collect data from school districts as a result of state mandates and federal reporting requirements. Applications are also used to distribute state and federal funding to K-12 school districts. When system development or modifications are identified as a result of a legislative mandate or reporting requirement, agency program managers and directors will meet to discuss potential IT expenditures and funding. If it is a state mandate, the OPI may seek funding through the legislative process to secure dollars and/or FTE for the cost of IT services. If the development is a result of a federal reporting requirement the cost is paid from the federal grant/s for which the reporting is required. Depending on the scope of the project, OPI management will determine whether the work can be handled in-house with agency IT staff or through a contract with a vendor.

7. IT Services and Processes

The OPI IT Division offers all IT services required by the Agency.

Services provided include:

- Network Services – including maintaining a complex server environment, application monitoring, data backup and disaster recovery
- Desktop Computer Services – including maintenance and upgrades of desktops, laptops
- Database Management – including the creation of new databases. Maintenance of existing environment and monitoring of database performance
- Security Management – provide management of access to agency applications and develop security policy and procedures
- Technical Help Desk – single source for assistance with all OPI IT solutions
- Vendor Coordination – provide assistance with vendors of IT services including SITSD
- Development Services – maintain 80+ OPI developed applications as well as oversight of development vendors
- Web Development Services – maintain the OPI web site
- Video Services – including producing videos for agency use and editing/maintaining video
- Project Management Services – provide project management for large IT efforts
- School Computer program – the OPI collects IT equipment that other state agencies no longer use and distribute the equipment to Montana schools including 2000 PCs a year as well as servers and peripherals

8. IT Infrastructure, Staffing and Resources

IT Infrastructure

The OPI houses its hardware at the State of Montana Data Center (SMDC) and utilizes the Miles City Data Center (MCDC) for disaster recovery.

The majority of agency applications run on hardware owned and managed by the OPI. A small, but significant number of OPI applications run on hardware provided by SITSD. The MCDC houses both the OPI's nightly backup of data and enough hardware to run OPI's mission critical applications in the event of a disaster.

IT Staffing

The OPI maintains an IT staff of 24 individuals within the Operations Division of the OPI. Staff includes an IT Division Administrator, one project manager, a Network Services Bureau Chief who manages seven individuals (network administrators, databases analysts, help desk and security), a Systems Development Bureau Chief who manages twelve developers and an individual who manages the School Computer program.

9. Risks and Issues

| Primary Risk | Probability | Impact | Mitigation Strategy |
|--|-------------|--------|---|
| Security breach | Medium | High | Our agency has an active security program including, but not limited to, staff training and awareness, data encryption, and security policies. |
| Adequate Staffing levels | Medium | High | The OPI will be requesting staffing increases during the next session to support systems created in the last biennium by temporary project teams. |
| Difficulty of hiring qualified technical staff | High | High | Increase pay for positions most affected by this issue. |

10. IT Goals and Objectives

Goal 1 Statewide Longitudinal Systems Data Warehouse

Description: The establishment of a data warehouse and the accomplishment of the related objectives will lay the foundation for a longitudinal data system with long-lasting benefits for public education in Montana.

Timely and accurate data and the powerful analyses made possible by the business intelligence tools that are part of the data warehouse will be invaluable for the State Superintendent, the OPI, the Governor and the legislature, the Montana Board of Public Education (K12), boards of trustees, administrators and teachers.

Data is being migrated to the data warehouse from all major databases currently in use at the OPI. The consolidation of this data will allow the information to be combined and queried in ways that are now extremely labor intensive and therefore infrequently used. The data warehouse will become the primary source for data distributed to the public and via a secure login, Montana Schools.

Benefits: The data warehouse is the backbone of the statewide longitudinal data system. Such a system makes it possible to use growth models both for school accountability and for improving instruction of individual students. It will facilitate federal and state reporting and it will allow more individualized tracking, instruction and intervention with students by teachers and administrators. In the future, this foundation will make possible parental tracking of student progress and greater public transparency of what is happening in schools. The foundation of all

these beneficial outcomes for the Montana educational system is a data warehouse that makes possible a longitudinal data system.

Does this goal support the OPI Strategic Plan?

Goal 2 Improve Information Technology Efficiencies and Capabilities

Description: Improve efficiencies and capabilities by implementing new technologies when older technologies no longer serve their function and the mission of the office and by consolidating technical solutions where possible.

Benefits: Reduced cost, improved employee and program efficiencies, as well as customer satisfaction with related information and availability of services.

Does this goal support the OPI Strategic Plan?

Supporting Objectives

Objective 2-1 – Consolidate conferencing capabilities

Description: The OPI currently uses a number of solutions for video and web based conferences. The multitude of options make it difficult to train staff and are confusing to use. The OPI intends to analyze the systems in use and standardize on one or two solutions

Objective 2-2 – Fully utilize the capabilities of existing software packages

Description: The OPI currently owns a number of software solutions that were purchased to solve a specific business problem. These software solutions can be leveraged throughout the agency at no additional cost. The OPI intends to analyze existing solutions and determine how they can be used throughout the agency.

Objective 2-3 – Review and consolidate the OPI server environment

Description: The OPI dramatic growth in its infrastructure in the last 2 years. The rapid growth resulted in some operational inefficiencies. The OPI intends to review its hardware infrastructure and restructure the environment based on industry best practices

Goal 3 New application development

Description: There are several upcoming projects that will need to have applications developed. These efforts may require purchasing an off the shelf product, some may be developed in-house, and others may require the services of a contractor. Each application will be evaluated to

determine the best use of existing tools, staff, and budget.

Benefits: The OPI is required to comply with many state and federal mandates for reporting data. The applications listed below will streamline the process and make decisions and actions based on these decisions more timely and accurate.

Does this goal support the OPI Strategic Plan?

Goal 4 Records Management

Description: Work with the Department of Administration, eRIM committee and the Secretary of State Office to implement an enterprise solution for electronic records management.

Benefits: Records are easier to locate when needed, will save time and effort locating the records. Standards could be defined as to retention, metadata, archiving, classification, etc.

Does this goal support the OPI Strategic Plan?

Goal 5 Project Management Development

Description: Further develop the Project Management practice within the OPI including coordinating with the SITSD Project Management Office, supporting ongoing training, using standard methodologies for repeatable processes and facilitating IT project portfolio management. Ensure IT projects are being driven by business needs and effective contract management.

Benefits: Project management practices have been demonstrated to improve the probability of success of projects and help ensure that projects are completed on time, on budget and that they meet the needs of the agency.

Does this goal support the OPI Strategic Plan?

Supporting Objective

Objective 5-1 – Establish a Project Management Office

Description: The OPI currently hires and/or contracts project management help on an as needed basis. The agency would like to establish a PMO staffed with a PM and a business analyst to perform functions currently outsourced.

Goal 6 Electronic Student Transcript Data System

Description: The focus of this goal is to address data collection and data linkages among K-12 education and postsecondary institutions. Specifically, this goal is intended to address Montana's required data system elements under 20-7-104, MCA and for the Data Quality Campaign:

- the capacity to communicate with higher education data systems;
- student-level transcript information, including information on courses completed and grades earned;
- information regarding the extent to which students transition successfully from secondary school to postsecondary education, including whether students enroll in remedial coursework; and
- other information determined necessary to address alignment and adequate preparation for success in postsecondary education.

Benefits: The Student e-Transcript data system will build on the SLDS data warehouse (see Goal 1). This goal will establish stronger links between the K-12 education data housed within the OPI and Montana post-secondary data to allow for better analysis of student outcomes over the course of their education life. Such a system makes it possible to use growth models both for school accountability and for improving instruction of individual students. It will facilitate federal and state reporting, and it will allow more individualized tracking, instruction and intervention with students by teachers and administrators.

Does this goal support the OPI Strategic Plan?

Supporting Objectives

Objective 6-1 – Establish data linkages from K-12 to postsecondary

Description: Link K-12 data with OCHE to allow better tracking of students throughout their educational career improve K-12 education in order to prepare students for higher education.

Objective 6-2 – Create an electronic transcript repository for K-12 education

Description: The OPI will facilitate the transfer of transcript information from Montana high schools to a 3rd party transcript service as well as use the data for analysis

Objective 6-3 – Develop a system of K-20 performance measurement and reporting

Description: OPI has agreed to Shared Policy Goals with the legislature, OCHE and the Board of Public Education. The agreement includes objectives

and performance measures for K-12 and K-20 efforts. OPI's information systems support the state's efforts to raise high school graduation rates and to ensure that students graduate college- and career-ready.

Goal 7 Improve the security environment for the agency

Description: The OPI has many security policies and procedures in place and reviews them on a regular basis. With the recent adoption of the Information Security Program policy, the agency will have to take a fresh look at its security practices and implement additional process and procedures in order to comply with the new statewide policy.

Benefits: This goal will result in a more secure environment for the data housed within the agency.

Supporting Objectives

Objective 7-1 – Implement the appropriate NIST guidelines within the agency

Description: In order to comply with the new statewide security policy, NIST guidelines must be interpreted and implemented within the agency.

Objective 7-2 – Institute an enterprise identity management system to control the provisioning and authentication of accounts with access to OPI data

Description: As the OPI collects and stores additional data about the student population, the effective control of access to this data is crucial to maintaining the required confidentiality.

Objective 7-3 – Coordinate OPI Identity Management activities with SITSD Data Security project

Description: The OPI intends to coordinate with the SITSD security project in order to leverage tools and techniques SITSD develops. We will participate on the groups and committees that provide guidance to the project and work closely with the team, so that, to the extent possible, the solution provided by SITSD meets the OPI's unique needs.

Objective 7-4 – Update the disaster recovery plan and create a Continuity of Operations Plan. The OPI currently has a disaster recovery plan for an agency-specific failure, but does not have a complete Continuity of Operations Plan. The OPI will work with the Department of Administration to prepare and test such a plan.

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11. IT Projects

| Item | Description |
|--|---|
| Project name | Direct Certification Enhancements |
| Project/program purpose and objectives | The OPI recently introduced a new system that uses DPHHS data to directly certify students for the schools nutrition program. The agency recently received a USDA grant to enhance the system to increase usability, add additional sources of data for use in certification and to build interfaces to school district systems |
| Estimated start date | January 21, 2014 |
| Estimated cost | \$971,000 |
| Funding source - 1 | USDA Grant - \$971,000 |
| Funding source - 2 | |
| Funding source - 3 | |
| Annual Costs upon completion | |

| Item | Description |
|--|---|
| Project name | K-20 Data Project |
| Project/program purpose and objectives | The project will provide high school transcripts for all Montana students, establish a K-20 Data Governance Council, establish links between K-12 and post-secondary systems and produce reports for analysis of the college readiness of Montana students. |
| Estimated start date | July 1, 2012 |
| Estimated cost | \$3,977,860 |
| Funding source - 1 | US Department of Education - \$3,977,860 |
| Funding source - 2 | |

| | |
|------------------------------|--|
| Funding source - 3 | |
| Annual Costs upon completion | |

| Item | Description |
|--|--|
| Project name | SLDS Data Project |
| Project/program purpose and objectives | The project will establish a k-12 data warehouse, a data governance structure and will populate the data warehouse with historic data. |
| Estimated start date | July 1, 2009 |
| Estimated cost | \$5,798,457 |
| Funding source - 1 | US Department of Education - \$5,798,457 |
| Funding source - 2 | |
| Funding source - 3 | |
| Annual Costs upon completion | |

12. Security and Business Continuity Programs

The OPI understands the importance of incorporating NIST security standards into its security framework, and has been taking action to align its security program with the NIST standards.

The OPI has volunteered to serve on the State's newly formed Internet Security Manager's Group (ISMG). One of this group's first tasks was to review each of the NIST security standards in detail, and adopt the standards (or a version of them) into the State's enterprise security framework.

The OPI has recently hired a dedicated Information Security Systems Analyst, who will not only serve as the OPI representative for ISMG, but will review and incorporate any applicable components of the State's enterprise security framework into its own NIST security program as it develops over the next biennium.

The OPI continues to work with the Dept. of Administration's Continuity Office to create plans for restoring essential State services in the event of a serious incident, disaster or interruption that affects the state's infrastructure or people. We are using the state's continuity planning tool, LDRPS (Living Disaster

Recovery Planning System) which has been configured based on Federal guidelines, the State's requirements and best practices.

All of the Phase 1 steps of the Business Continuity Plans are complete. Phase 1 steps include identifying Services/Processes (S/P) for all divisions and identifying owners, legal authorities and critical processing periods for each S/P. Each S/P has been ranked against the state essential functions and assigned a recovery time objective. Necessary information systems, applications and software have been assigned to each S/P. Key external contacts, including vendors and districts have been loaded into LDRPS which links to Notifind, our automated notifications system. Key personnel have identified two successors who are authorized to assume their duties. We are currently reviewing all plans to check for missing Phase 1 items and to ensure that succession plans include current employees. At the end of this review, the plan will be published and a decision will need to be made regarding on- and off-site locations for hard copies of the plan.

Phase 2 includes assigning recovery resources and managing documents. We will start Phase 2 in July 2014 with identifying Teams/members, Telecoms and Tasks for each S/P. Tasks for January 2015 include identifying Equipment and Supplies, Essential Records, and Recovery Sites and Seats.

13. Planned IT Expenditures

| | FY2014 | FY2015 | FY2016 | FY2017 | FY2018 | FY2019 |
|-----------------------|-----------|-----------|-----------|-----------|-----------|-----------|
| IT personal services | 1,625,957 | 1,703,152 | 1,758,876 | 1,804,284 | 1,851,054 | 1,899,228 |
| IT operating expenses | 392,987 | 402,012 | 408,221 | 413,349 | 418,630 | 424,071 |
| IT initiatives | 3,300,000 | 3,235,000 | 291,300 | 0 | 0 | 0 |
| Other | | | | | | |
| Total | 5,318,944 | 5,340,164 | 2,458,397 | 2,217,633 | 2,269,684 | 2,323,299 |

14. Administrative Information

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