

OFFICE OF AUDITOR GENERAL



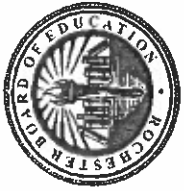
Information Technology - Governance Audit Report

August 26, 2010



**Information Technology - Governance
Index**

<u>Report Section</u>	<u>Pages</u>
Executive Summary	1
Summary of Recommendations	3
Observations, Recommendations and Action Plans	
Adoption and Amendment of Policies and Regulations	4
Strategic Planning	5
Steering Committee Governance	6
District-wide Technology Standards	7
Shared Visibility to Business Priorities	9
Technology Compatibility for Acquisitions	10
Data Ownership	12



Information Technology - Governance Executive Summary

OBJECTIVE

To evaluate the operating control environment regarding governance of Information Technology within RCSD.

BACKGROUND

Information Technology governance provides value to the District through the use of information technology resources such as people, processes and infrastructure. Governance determines how operating expectations are set and measured; for personnel, operating activities, budgets, and projects. It also includes oversight, strategic alignment, and customer focus.

While Information Technology governance does primarily occur through Information Management and Technology (IM&T), the governance process must be a District wide initiative with IM&T acting as an enabler and supporter of District activities. Significant technology departments include IM&T, Office of Accountability, Instructional Technology, and IEP Direct.

SCOPE

To evaluate the District processes for Information Technology governance. We will assess the District's framework for Information Technology governance and determine if adequate internal controls have been implemented.

We collaborated with the key personnel to understand the current control environment and test the operating control environment. We identified opportunities for improvement and issued recommendations to improve the control environment.



Information Technology - Governance Executive Summary

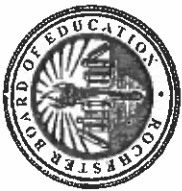
CONCLUSION

Many improvements and efforts in district wide systems have taken place to improve organizational value, through the implementation of new systems, and the leadership provided by new management. The value associated with investments in technology and its alignment with RCSD operations can be further improved through common governance activities. They include the establishment, documenting, and communication of district wide technology regulations such as technology acquisition standards, and shared visibility to business priorities between IM&T, the Office of Accountability, and Teaching and Learning. This sharing would aid in the development of an integrated technology strategic plan to govern priorities, risks, and performance expectations. A cross-functional management team, while previously specific to individual projects could improve governance when sustained across projects for district wide standards, priorities, risk management and strategic planning. The Board's opportunity for oversight of any new or modified regulations could be enhanced through review and comment prior to adoption by Administration.



Information Technology - Governance Summary of Recommendations

Rec#	Recommendations
1	<i>Consider amending Board policy 2410 to require Board monitoring of regulations through review and comment of all new regulations and changes to regulations prior to adoption by Administration.</i>
2	<i>Establish a comprehensive multi-year Technology Strategic Plan. Consider key ongoing activities, risks in operations, and new initiatives from a district-wide strategic planning framework that includes time, cost and quality perspectives.</i>
3	<i>Establish and implement a technology governance Steering Committee consisting of Senior management to assist with adoption and support of technology decisions regarding: standards, processes, priorities, data ownership, alignment of responsibilities, risk management, and strategic planning on an ongoing basis.</i>
4	<i>Establish, document and communicate district-wide technology standards and processes to govern technology operations. At a minimum, include standards for data management, access, quality, systems development, testing, and customer service standards. Ensure that all relevant technology department requirements are considered and obtain buy-in to facilitate acceptance and compliance.</i>
5	<i>Establish a standard communication process to provide shared visibility for projects and related trouble tickets for all organizations performing technology related functions. Consider creating a cross-functional review team and shared database to facilitate communication and collaboration.</i>
6	<i>Develop and communicate RCSD hardware and software acquisition standards to facilitate business units identifying products that will be compatible with RCSD infrastructure. Document and communicate a process with timelines to manage and approve non-standard technology requests.</i>
7	<i>Define responsibilities and measures for the data owners. Document and maintain a current listing of data owners across systems and within system modules as appropriate. Obtain commitment from people with this designation for all key systems.</i>



Information Technology - Governance Observations, Recommendations and Action Plans

OBSERVATION: #1

Adoption and Amendment of Policies and Regulations

Oversight for Regulations should be implemented to improve Board governance. Policy 2410, "Formulation, Adoption, and Amendment of Policies", designates authority to the Superintendent to establish all rules, regulations, and/or procedures necessary to implement and maintain Board policies. Regulations do not require formal Board approval; however, the Board can modify rules and regulations at any meeting. Regulation 2410-R, "Formulation, Adoption, and Amendment of Policies Regulation", further specifies authority to the Superintendent to amend, modify, repeal and distribute any administrative regulation implementing policies without Board resolution or approval, unless the policy specifically requires Board approval.

There is no requirement for Board visibility or comment for any new or modified regulations prior to adoption by the Superintendent. Such delegation could be considered inadequate oversight of District operations. In order to improve the control environment, the Board should monitor all new regulations and changes to regulations by requiring the Board's review and comment prior to regulation adoption. Since regulations exist in support of Board policies, the oversight and monitoring are appropriate and would be consistent with improved governance by the Board.

RECOMMENDATIONS and MANAGEMENT RESPONSES

Consider amending Board policy 2410 to require Board monitoring of regulations through review and comment of all new regulations and changes to regulations prior to adoption by Administration.

Management Responses: This will be brought to the Board's attention through the following process. A revision to policy will be proposed for the Policy Development and Review Committee. A formal determination will result in either amendment, tabling, approval, or denial. If approved, the policy will go to the Board for its adoption. This process is planned for completion in February 2011.

Responsibility: Debra Flanagan, Policy Development and Review Committee

Due Date: February 28, 2011



Information Technology - Governance Observations, Recommendations and Action Plans

OBSERVATION: #2

Strategic Planning

An integrated, technology-based strategic plan does not exist within RCSD. We received an IM&T Strategic Plan for the 2010-2011 school years; however, it did not include a holistic view of technology operations at the district. The IM&T plan is aligned with district priorities and is oriented at technology performance, but the approach lacks maintenance activities and quality assessment. Highlighting the ongoing maintenance resources required to sustain current operations is also strategic when decisions should be made regarding tradeoffs in an environment with limited resources. Although technology departments work individually on their own objectives, best practices for technology governance would provide perspective at a high level so that priorities, risk orientation, and performance expectations are governed consistently across technology departments for business risks. The Information Technology Officer has communicated a desire to create a three (3) Year Strategic Plan after adopting a strategic planning framework. The major technology departments should consider development of strategic plans that are collaborative and provide seamless integration of technology services.

RECOMMENDATIONS and MANAGEMENT RESPONSES

Establish a comprehensive multi-year Technology Strategic Plan. Consider key ongoing activities, risks in operations, and new initiatives from a district-wide strategic planning framework that includes time, cost and quality perspectives.

Management Responses: The development of a three-year Technology Plan is in process. The target is to complete this plan in time for the 'Technology Expo' event – December 2, 2010. The Technology Plan ties each technology initiative to a goal on the District's Strategic Plan. This is a joint effort between the Instructional Technology Dept and IM&T. However, once the draft document is completed, it will be sent to the Superintendent's Executive Team for review and to ensure that all initiatives have been identified. Additionally, we have worked with the Gartner Group during the development of our Technology Plan.

It should be noted that one of the difficulties with establishing and executing a Technology Plan has been the requirement and acquisition of scarce resources to execute. Should the plan be adapted by the BOE, the responsibility for execution remains with IM&T and IT, however an equal responsibility lies with the District to provide the required resources to execute the plan.

Responsibility: Annmarie Lehner, Information Technology Officer **Due Date:** February 1, 2011



Information Technology - Governance Observations, Recommendations and Action Plans

OBSERVATION: #3

Steering Committee Governance

Governance of technology projects has been project specific in lieu of a district-wide, ongoing approach to management. Significant projects have Project Sponsors and a Steering Committee to ensure that project objectives and goals are met. At the end of the specific project, the Steering Committee is dissolved and operations continue in a less formalized manner. A cross-functional Senior Management team is necessary to obtain and sustain commitment for improved technology governance. As comprehensive technology standards and procedures are created, this committee can facilitate compliance with organizational standards.

RECOMMENDATIONS and MANAGEMENT RESPONSES

Establish and implement a technology governance Steering Committee consisting of Senior management to assist with adoption and support of technology decisions regarding: standards, processes, priorities, data ownership, alignment of responsibilities, risk management, and strategic planning on an ongoing basis.

Management Responses: I do agree with the recommendation of the OAG regarding the topic of Steering Committee Governance. I think this is the direction we are headed, but I also recognize that it may take us some time to accomplish this. The Superintendent's Executive Team is newly formed and many are just becoming comfortable with their new roles – this includes the IM&T Technology Officer. We have many initiatives in process and we are still working on completing the basic regulations and policies that must be in place in order to establish a framework for the Technology Department. However, I believe the Organization will soon be ready to establish a Technology Governance Committee and will also be able to focus the required time & effort to ensure its success in the 2011-12 school year.

Responsibility: Annmarie Lehner, Information Technology Officer

Due Date: January 1, 2012



Information Technology - Governance Observations, Recommendations and Action Plans

OBSERVATION: #4

District-wide Technology Standards

Comprehensive, District-wide technology regulations and standards are critical to establishing an appropriate governance structure for the organization. This guidance is particularly relevant since technology operations exist in IM&T, Office of Accountability, and in the Office of Teaching and Learning. There is no shared vision on how to manage the systems and data or a forum to share common, relevant knowledge. There were some practices that existed in the various technology departments; however, collaboration and formalized governance standards, to require or align the expectations throughout RCSD, do not exist. The organization would benefit from shared practices regarding data management, access, quality, systems development, testing, and customer service standards. This will ensure that risks associated with potentially conflicting business objectives are minimized.

RECOMMENDATIONS and MANAGEMENT RESPONSES

Establish, document and communicate district-wide technology standards and processes to govern technology operations. At a minimum, include standards for data management, access, quality, systems development, testing, and customer service standards. Ensure that all relevant technology department requirements are considered and obtain buy-in to facilitate acceptance and compliance.

Management Responses: Granted and agreed that in this regard, District-wide Technology Standards, there has been a pervasive need for the establishment of policy/administrative guidelines over the course of the past few years. Especially since the growth and need for technology is threaded through virtually every instructional and operation department within the District.

Previously, the IM&T administration was not able to execute to establish this type of supervision even though these areas and concerns were identified. During my tenure as the lead for IM&T, a number of IM&T Regulations are in various stages of Development. Some are approved, some are currently in the approval process, some are in development and some have been identified to be completed in the future. These are:

- Cellphone Regulation - approved
- Acceptable Use Regulation - currently within the approval process
- Password Regulation - currently within the approval process
- IM&T Software/Hardware Standards - this will be resolved through the use of the previously mentioned software and hardware ordering processes - soon to be released.



Information Technology - Governance Observations, Recommendations and Action Plans

- Student Internet Use Policy - in process
- Confidentiality Agreement - this will be drafted by Legal – to be required for all employees who have access to sensitive/confidential information.
- Chancery Security Process - Completed
- PeopleSoft Financials Security Process - Completed
- PeopleSoft HCM Security Process - complete, but not formally documented - to be completed.
- District Procedures for maintenance of Handheld devices, including Droids, iPads, iPods, etc. - To be completed.
- HelpDesk - Service Level Agreement - To be completed.
- Instructional Software/licensing Acquisition Procedures - To be completed

Responsibility: Annmarie Lehner, Information Technology Officer

Due Date: June 30, 2011



Information Technology - Governance Observations, Recommendations and Action Plans

OBSERVATION: #5

Shared Visibility to Business Priorities

Shared visibility to business priorities involving technology are not shared among the three operating units. IM&T, Accountability and Teaching and Learning each have dedicated resources to support business priorities in their respective areas. These organizations have separate business objectives, project tracking systems and processes to facilitate resource usage and timelines. The utilization of independent tracking systems does not allow all relevant concerns or priorities to be considered when planning projects and creating solutions. If all relevant parties are not considered in project planning, it can result in less than optimal solutions, or unintended consequences that could negatively impact business areas outside of the requesting department.

RECOMMENDATIONS and MANAGEMENT RESPONSES

Establish a standard communication process to provide shared visibility for projects and related trouble tickets for all organizations performing technology related functions. Consider creating a cross-functional review team and shared database to facilitate communication and collaboration.

Management Responses: The perception that needed communication between the three departments is in some degree a direct by-product of the absence of a Steering Committee that establishes policy for all members of all teams. Even though the current tri-department leadership has had the luxury of an excellent working relationship and open lines of communication, the establishment of a cross sectional leadership team will imply a process for each department that will aide in the elimination of rogue and latent requests/requirements, that are commonly beyond the timeframe of a productive conversation regarding need and viability, rather requests to implement/service a product absent of substantive discussion and evaluation. The IM&T Department uses the Alloy Navigator tracking system to document all HelpDesk tickets, as well as all work-in-progress/requests in our Enterprise applications areas, including the SMS and PeopleSoft groups. The Alloy Navigator tracking system also has built-in workflow functionality that allows email notifications to be forwarded to the appropriate staff person in each area of responsibility. IM&T will work with the OOA and Instructional Technology Departments to determine if this tracking application can be used to manage assignments in these departments, as well. If this application will meet the requirements of OOA and Instructional Technology, IM&T will complete the necessary setup and workflow definition that will be necessary to add these departments to the Alloy tracking system.

Responsibility: Annmarie Lehner, Information Technology Officer **Due Date:** June 30, 2011



Information Technology - Governance Observations, Recommendations and Action Plans

OBSERVATION: #6

Technology Compatibility for Acquisitions

Comprehensive standards for acquisition of hardware and software do not exist to assure compatibility with existing infrastructure. Various business units have specialized technology requirements that could benefit from "off the shelf" technology products. A formalized listing of standard technology specifications including hardware and software does not exist to facilitate business decisions. Cameras, televisions, iPads, software and other devices are dependent on IM&T resources at some level for connectivity and ongoing maintenance. A standardized product specification tool could include products that have already been tested and are understood to be supportable within the current infrastructure without undo incremental effort and expense. The district's decentralized ordering process has already increased technology requests including new technology not within the current structure. In addition, there have been instances in which IM&T is not involved with vendors in order to alleviate compatibility and maintenance risks. IM&T is concerned about: ease of deployment, licensing, compatibility, knowledge to support the product, operating commitment, and total cost of ownership. Departments that do not ensure IM&T involvement often cause issues that could have been remediated with proper planning. IM&T is working on a method of controlling departmental requests. Additional communication and framework regarding RCSD compatibility will facilitate this process.

RECOMMENDATIONS and MANAGEMENT RESPONSES

Develop and communicate RCSD hardware and software acquisition standards to facilitate business units identifying products that will be compatible with RCSD infrastructure. Document and communicate a process with timelines to manage and approve non-standard technology requests.

Management Responses: This is in process. For hardware acquisitions, a process has been developed that will allow staff to place their own hardware orders, via eProcurement. Dell is the most common hardware vendor for the District. We have been working with Dell over the past 4 months and we recently established Dell as a Direct Connect vendor in our PeopleSoft eProcurement system. Dell has worked with the District to create an RCSD/Dell webpage, which will display only those hardware items IM&T has approved for purchase at the District. Additionally, this site will list the RCSD-specific pricing for these hardware items (which includes our discount). To place a Dell hardware order, staff will utilize the Direct Connect link in eProcurement, which will take them to the RCSD/Dell website. They will "shop" on that site and, once completed, their "shopping cart" of Dell items will be copied into their eProcurement Purchase Requisition. Additionally, for non-Dell hardware purchases, "Favorites" in eProcurement have been established. These "Favorites" will list all non-Dell hardware items that have been approved for purchase by the District.



Information Technology - Governance Observations, Recommendations and Action Plans

These favorites, and subsequent pricing, will be maintained by IM&T and updates will be regularly "pushed" out to the favorites of all eProcurement users (programmatically - this is a scheduled process).

The above-defined process will help to ensure that only equipment that has been approved for use at RCSD can be purchased. This will allow some controls to be placed on hardware acquisitions:

All hardware-related Purchase Requisition will continue to be sent through the previously-established workflow approval process. IM&T is one of the approvers in this Workflow process, so these Purchase requisitions will also flow to IM&T for approval. His will insert two levels of control for hardware purchases:

- (1) Staff will only have the ability to order "vetted" hardware items - those items that have already been approved by IM&T - equipment that meets with our specifications.
- (2) These purchases, prior to PO creation, will also pass by IM&T for approval - specifically, this will allow us to follow up with the Requestor if we believe they may have missed something in their order. Also, this advance knowledge of each hardware order will allow us to create a work order for the installation of this equipment. This is the process we currently follow - all hardware orders will eventually require IM&T follow up for installation.

Software acquisitions will be handled by a separate process. A web-based application has been developed for this purpose. This application will be posted on Sharepoint and instructions will be provided to all staff so that they may to use this application to make requests for software purchases. After logging on to the application, the user's credentials (name, location) will be automatically populated, since this will be tied to our Active Directory. The user will provide basic info about the software they are interested in, including the use of the application and the vendor info. Once this info is entered, built-in workflow will generate an email to the appropriate IM&T or Instructional Technology staff member (this will be determined from the info entered by the user), and the IM&T or Instructional Technology representative (Mark Cassella or Tim Cliby) will then follow up in validating that the software does meet the District's minimum requirements (these basic requirements are also posted in this Software Acquisition application - viewable by the end user). Once approved/rejected, an email will be automatically sent back to the original requester, notifying them of the approval or rejection of their software request.

The implementation of this new software acquisition process/application will insert much-needed controls into the District's software acquisitions.

Responsibility: Annmarie Lehner, Information Technology Officer **Due Date:** December 1, 2010



Information Technology - Governance Observations, Recommendations and Action Plans

OBSERVATION: #7

Data Ownership

Data ownership and oversight are not consistently defined and agreed upon. Data owners are responsible for data integrity. Owners of data directly impact the quality of data and should have common responsibilities, regardless of the system used. While the organization has provided appropriate clarity surrounding ownership within PeopleSoft, all systems should have similar clarity. Accountability has taken a significant role in improving the integrity of Chancery information due to their need to rely and report on the information from the Chancery system. A data owner designation, without formalized responsibilities and measures of performance, does not facilitate consistent data reliability within systems. When schools acquire software for instructional purposes, there are no current comprehensive plans on how to integrate and utilize data with existing systems. Efforts to administer and control data quality in those systems are considered locally and incrementally, and are especially important when opening and funding new schools. Data ownership responsibilities should include:

- 1) Prepare a list of owners with responsibility for each system.
- 2) Identification of shared system components and communication to minimize business interruption when changes are planned.
- 3) Maintaining the integrity of data accumulated within the system.
- 4) Establishing methods for business continuity during system unavailability.
- 5) Establishing system documentation for operations and data collection.
- 6) Formal testing and acceptance of system changes.



Information Technology - Governance Observations, Recommendations and Action Plans

RECOMMENDATIONS and MANAGEMENT RESPONSES

Define responsibilities and measures for the data owners. Document and maintain a current listing of data owners across systems and within system modules as appropriate. Obtain commitment from people with this designation for all key systems.

Management Responses: As mentioned in the above OAG Observation #7, data owners for the various PeopleSoft applications have been clearly established and communicated. Assigning responsibility in these business areas is relatively easy - the HR data must be owned by HCI, the Payroll data must be owned by the Finance area, etc. Within the Student Information System (Chancery), the ownership delegation is not as easy. The Office of Accountability has a group of staff dedicated to ensuring data quality - an OOA staff member has been assigned to each school zone and they work with their schools to maintain the quality of the Chancery student data. Regular meetings are held with the School Registrars to offer training on procedural changes, to review Chancery enhancements, to have a forum where issues can be relayed and best practices shared, etc.

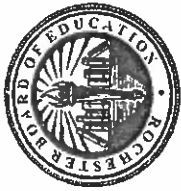
While the OOA places a high importance on maintaining this data quality, specifically because this data must be reported to the State, the Superintendent has established that the Data Owners of the student data should not be the responsibility of one Department alone, but rather the Data Ownership responsibility lies with the Chiefs and School Principals. The entry of the student data begins in the schools - Principals and Chiefs must take full responsibility to ensure data quality in their schools/programs, within their areas of responsibility.

The soon-to-be-released Data Warehouse will assist in this data ownership/data quality. In the near future, data will become much more accessible to the Executive Leadership Team and School Principals. They will not have to wait for a report to be prepared to take notice that something is amiss with the data in their school - if attendance is not being taken properly, they will be able to view this when they look at their Dashboard reports, for example.

Additionally, the Office of Accountability has been working on a Project implementation of a product called, 'Certify'. This application is delivered with the State Level 0 & some Level 1 rules in place. Data from Chancery and IEPDirect (Special Ed system) will be validated through the Certify application, applying the State "data quality" (Level 0 & Level 1) rules. Certify will produce Data Exception reports and these exceptions will be corrected in the "Source" systems - Chancery or IEPDirect.

The above-mentioned tools will assist in the management of the data quality of our Student Data.

While the Department of IM&T is certainly a "partner" to the other areas of the Organization in maintaining data quality, it is not



Information Technology - Governance Observations, Recommendations and Action Plans

IM&T's role to define what "data quality" means in each application. This definition and the subsequent responsibilities to maintain this data quality must lie with the Data Owners. With the Student data, the State of New York has defined data quality through the development of the Level 0 State Data Warehouse rules. The Certify product will assist the Office of Accountability Staff in ensuring data quality in all schools, by engaging the Superintendent-established Data Owners - the Chiefs and School Principals. Additionally, the RCSD Data Warehouse will provide ease-of-access to District data, to our Chiefs and Principals, again assisting in the regular monitoring of data.

Due Date: Certify Application: December 31, 2010; RCSD Data Warehouse: November 1, 2010 - Chiefs; RCSD Data Warehouse: April 1, 2011 - School Principals

Responsibility: Annmarie Lehner, Information Technology Officer **Due Date:** December 31, 2010