

Commonwealth of Massachusetts
Department of Early Education and Care

Information Technology Needs and Strategic Plan

December 14, 2005

Report prepared pursuant to the provisions of Item 3000-1000
of Section 2 of Chapter 45 of the Acts of 2005

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Executive Summary

This report was prepared in response to the language of EEC's administrative line item in the FY2006 General Appropriation Act (Item 3000-1000, Section 2, Chapter 45, Acts of 2005). This language requests a report on the information technology needs of the Department in general. In addition, it asks specifically for plans and cost projections for:

- a comprehensive database of early childhood educators and providers, for the purpose of enhancing the workforce development system;
- a database of children both waiting for and receiving early education and care services which is compatible with the SIMS database and any other relevant database at the Department of Education or the Executive Office of Health and Human Services; and
- the development of a comprehensive and scientifically valid longitudinal study of the effectiveness of various early education and care programs and services, including but not limited to comprehensive and consistent pre-school services provided to children from the age of two years and nine months through entrance into kindergarten.

The report highlights the major deficiencies of the legacy IT infrastructure inherited by EEC:

- multiple, uncoordinated systems exist to perform similar functions for different segments of the agency's clients;
- much of our data is not stored centrally, and much of it is not even stored electronically;
- the data we do have is often inconsistent and incomplete; and there is a range of additional data that we do not have but should, both for internal use and to inform and support families, providers, and other stakeholders; and
- virtually none of our business is done electronically; almost all transactions still rely on expensive and inefficient paper-based processes.

The report's recommendations – which are designed to address these deficiencies through a new Web-based platform, database structures, and specific application developments – are recapped below. The total projected cost of carrying out the recommendations in each area is shown, along with the target completion dates for the specific recommendations. Overall, these initiatives are projected to span the period from December 2005 through June 2008, and have a projected total cost of \$8 million.

Please note: This report does not address the IT resource needs of the community of providers, vendors, and stakeholders we regularly have interactions with. These needs will be addressed collaboratively with stakeholders as we implement the plan.

1. Infrastructure: Build the Foundation

- **Problems:**
 - Almost no usable information for families available on-line
 - EEC data decentralized, uncoordinated, incomplete
 - Almost no transaction processing done on-line

- **Recommendations:** **\$450,000**
 - 1.1 Design a plan for upgrading/expanding network infrastructure March 2006
 - 1.2 Standardize and upgrade server hardware June 2006
 - 1.3 Deploy extranet portal December 2006
(initial rollout)

2. Data: Centralize Existing Data

- **Problem:** Much existing data decentralized and/or incomplete:
 - Data on voucher and CPC providers and children/families stored locally at 14 Child Care Resource and Referral agencies (CCRRs) and 138 Community Partnerships for Children lead agencies (CPCs)
 - Data on license-exempt providers, and on CPC and Head Start children/families, incomplete
 - Data on early education and care workforce stored in two unrelated databases, and extremely limited
- **Recommendations:** **\$430,000**
 - 2.1 Centralize and integrate provider information July 2006
 - 2.2 Consolidate and centralize subsidized child and family data September 2006
 - 2.3 Integrate and centralize subsidy waiting list and management on-line January 2006
 - 2.4 Integrate limited existing workforce data February 2006

3. Data: Improve Access to Data

- **Problem:**
 - Families, providers, and EEC staff have extremely limited and cumbersome access to relevant data
- **Recommendations:** **\$300,000**
 - 3.1 Redesign existing Web site from user's perspective April 2006
 - 3.2 Add new and expanded functionality to Web site March 2007

4. Data: Expand Depth and Breadth of Data

- **Problem:** Additional data, not currently available at EEC, CCRRs, or CPCs, is needed in order for EEC to function effectively, for example:
 - Substantially enhanced information on early education and care workforce
 - Data-sharing arrangements with Department of Revenue, Department of Transitional Assistance, and Department of Social Services
- **Recommendations:** **\$3,560,000**
 - 4.1 Collect more detailed provider information and make available on-line September 2007
 - 4.2 Expand child-level data to include identifiers for all children, to provide internal policy guidance in the aggregate, and serve as basis for longitudinal study September 2007

4.3	Connect EEC's data to other agencies, including DOE's SIMS system, to track longitudinal child outcomes	July 2006 (subsidized); September 2007 (all in care)
4.4	Expand use of COMMBridge data sharing software to automate data exchanges with DSS, DTA, and DOR	January 2007
4.5	Design/build an early childhood educator database	June 2007
4.6	Design/build clearinghouse for workforce development resources	January 2007

5. Operations: Conduct Business On-line

➤ Problems:

- Licensing and license-related business functions all are handled on paper
- Voucher and CPC subsidy providers perform eligibility, intake, attendance, and billing functions on paper
- Families are unable to apply for services, assess their eligibility for programs, or request appointments for reassessment and referral on-line

➤ Recommendations:

\$2,460,000

5.1	Allow on-line eligibility and intake for direct services at any location	January 2007
5.2	Implement single on-line provider reimbursement system	January 2007
5.3	Automate registration for workforce coursework and trainings	June 2007
5.4	Move licensing transactions to the Internet	June 2007
5.5	Simplify child attendance reporting through new technologies	June 2008

6. Operations: Streamline Internal Processes

- **Opportunity:** Building on centralized, integrated databases, utilize business support applications to increase efficiency and productivity of EEC staff

➤ Recommendations:

\$810,000

6.1	Develop integrated provider monitoring system	June 2007
6.2	Streamline fiscal process through MMARS interfaces	June 2006
6.3	Improve communications through e-mail and the Internet	June 2006
6.4	Implement on-line forms for employee-agency transactions	December 2006
6.5	Install team collaboration and productivity software	June 2006

As the agency's policies and practices are changed and expanded in significant ways, there will be major implications for the IT systems that support them, with additional development and implementation costs that are not captured in this report. The fundamental IT developments outlined here will form the essential basis for any future improvement and expansion of EEC's services.

Introduction

On July 1, 2005, the new Department of Early Education and Care (EEC) officially became operational. EEC combines the functions of the former Office of Child Care Services (OCCS) with those of the former Early Learning Services Division at the Department of Education. EEC is responsible for licensing all early education and child care programs, providing financial assistance for child care services to low-income families, information and referral services, parenting support, and providing professional development opportunities for staff in the early education and care field.

EEC Mission

EEC will lead the way in helping Massachusetts children and families reach their full potential. By providing and coordinating a range of services and assistance, EEC will continuously improve the quality, affordability, and accessibility of early education and care in the Commonwealth.

These efforts affect nearly 12,000 early education and care providers, caring for over 270,000 children a day. In addition, in its broadest role, EEC serves as a source of child care information to over 500,000 families of young children in Massachusetts. The new agency has undergone an intensive organizational analysis over the last five months, and has identified several key challenges in achieving its mission:

- **Family access to services** is uneven due to differing eligibility criteria and inconsistent information regarding availability of financial assistance.
- **Providers** accepting state subsidies bear an unnecessary administrative burden, inequitable reimbursement, and uneven cash flow.
- **Early childhood professionals** have no access to complete educational information, especially for training and career development opportunities.
- **State administrative policies and requirements are not aligned to support continuous quality improvement.** Multiple regulations and standards produce uneven licensure and accreditation requirements that don't necessarily lead to higher quality.
- **Administrative infrastructure is not aligned to ensure accountability, coordination, and efficiency.** Many different organizations perform similar administrative functions.

One of the most critical ways to meet these challenges is through the improvement of information technology across every aspect of EEC's work. The current systems supporting EEC's multiple programs are redundant, incomplete, and simply inadequate to support the achievement of the new agency's goals and objectives. One obvious deficiency is that the current systems make very little use of the Internet's enormous potential for communication and transaction processing. To provide a coordinated, cost-effective, high quality early

education and care system for all Commonwealth residents, EEC must upgrade and expand its IT resources.

This report, prepared in response to the Legislature's requirement in the FY2006 Budget, is a welcome opportunity to outline EEC's information technology needs.

EEC Information Technology Report Mandate

(Item 3000-1000, Section 2, Chapter 45, Acts of 2005)

...not later than November 30, 2005, the department shall report to the secretary of administration and finance, the chairpersons of the joint committee on education, and the chairpersons of the house and senate ways and means committee on the information technology needs of the department, including the cost of a comprehensive database of early childhood educators and providers for the purpose of enhancing the workforce development system, and a database of children both waiting for and receiving early education and care services which is compatible with the SIMS database, and any other relevant database at the department of education or the executive office of health and human services; provided further, that the report shall also include an analysis of the costs associated with the development of a comprehensive and scientifically valid longitudinal study of the effectiveness of various early education and care programs and services, including but not limited to, comprehensive and consistent pre-school services provided to children from the age of two years and nine months through entrance into kindergarten...

The following plan was developed after a detailed "current state" assessment of the agency's IT resources, including discussions with providers, business entities, and other stakeholders the agency deals with on a regular basis. While it is primarily designed to help EEC make substantial progress in meeting its specific objectives over the next two fiscal years (FY2007 and FY2008), it also outlines key foundation-building steps that will allow EEC to reach longer term automation goals, leading to continual improvement in services for children and families in the years ahead.

IT Challenges and Opportunities

EEC inherited the functions previously performed by ELS and OCCS, along with the legacy IT systems that supported them. The primary inherited business functions and their related systems are:

- Licensing and regulation of early childhood programs in center-based, home-based and residential settings. *Supported by: Licensing Manager, Investigation Tracking System, and CORI (Criminal Offender Record Information) data system(s)*
- Providing information and referral to families about early childhood through its network of Child Care Resource and Referral agencies (CCRRs), Community Partnerships for Children councils and lead agencies (CPCs), and the Mass Family Networks (MFN). *Supported by: EEC's Web site (www.eec.state.ma.us), databases stored locally at each CRR, and paper-based systems at CPCs and MFNs.*
- Making financial assistance available to families to increase access to appropriate early education and care services, and managing the corresponding oversight and reimbursement of participating providers. *Supported by CCIMS (Child Care Information Management System) databases for voucher-funded services, stored locally at CRRs; Web-based eCCIMS system for contract-funded services; and a combination of locally stored electronic and paper-based CPC systems*
- Promoting and facilitating a quality early childhood workforce through career development and credentialing activities. *Supported by Teacher Qualification registry which currently contains only center-based professional staff*
- Strengthening families through its MFN program and Parent-Child Home Program (PCHP). *No IT systems, paper-based reporting*
- Conducting research about how to deploy program assessments that lead to positive outcomes for children. *Supported by various data sets stored in SPSS statistical software*

While these IT systems are essential to the work of the agency, they have serious limitations in their current state. As the business processes of the agency change – disparate programs become re-aligned, uniform eligibility criteria and reimbursement mechanisms are designed, and an improved infrastructure is implemented – the IT systems must change as well. From our examination of the current state, the following are some of our major challenges

- We cannot increase family access to basic early education and care information or streamline business processes for providers without upgrading our IT infrastructure to host *Web-based* technology.

- The current data systems that store this information are hosted by client-server technology that is not readily compatible with the Internet.
- Existing provider information is redundant, limited in content and stored both centrally and at local sites.
- We have no central access to comprehensive child and family data that is stored at the local level.
- The vast majority of transactions between providers and EEC are paper-based, requiring cumbersome data entry and filing processes.
- Almost none of our information about training opportunities, workforce development, and quality initiatives is available on the Internet.
- Without access to a unique identifier for the children receiving early education and care services, we cannot evaluate the effects of program initiatives on child outcomes as children transition to elementary schools and beyond.

The balance of this report will describe how we intend to meet these challenges. We plan to do this in three ways:

- improving our IT infrastructure;
- improving data quality, quantity, and access; and
- further automating and Web-basing our business processes.

1. Infrastructure: Build the Foundation

Problem

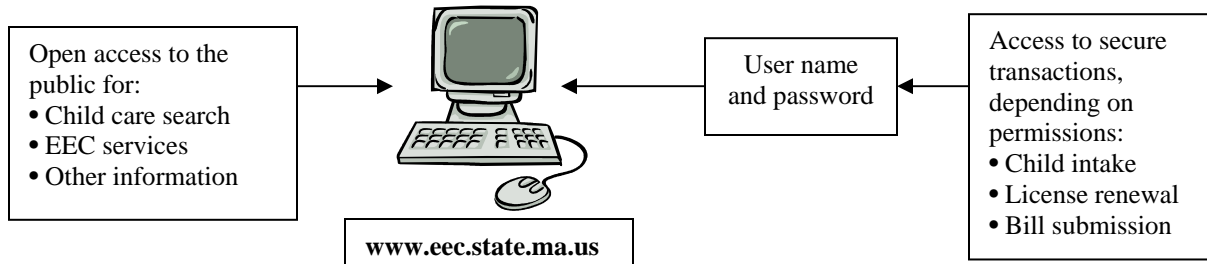
Families and providers have difficulty gathering information about EEC's programs and services. From our Web site, parents can search by city or by zip code for early education and care services for their children, but once found, they cannot get any more information about providers without *telephoning or visiting* an EEC regional office, a local Community Partnerships for Children lead agency, or a Child Care Resource and Referral agency. (While some CCRRs post some additional provider information on their Web sites, this data still lacks the level of detail stored in their local offices.) If families are seeking subsidies for services, they must physically go to a site where their eligibility for such services can be determined. Once there, they can apply for programs offered by that site, and must get referrals and then physically visit different sites to apply for other programs. If they want to maximize their chances of obtaining subsidized care, they must apply at many sites.

From our Web site, providers can download forms and applications, but they still must complete these by hand and then *mail* them in to EEC. Similarly, our staff has access from their office desktops to a wide range of useful data. But providers and the families we serve have virtually no access to this internal information without making special data requests to EEC. Even EEC staff cannot get a holistic view of the providers we regulate: licensing information is in one place, contracting information in a second place, and subsidy information in a third. Although anyone can access our public Web site, (there are no logons or passwords), this site does not have the capability for staff, families, most providers, and other stakeholders to actually *do business with us* on-line. (*Contracted* providers currently are able to make use of EEC's one on-line application, eCCIMS, for subsidy management and billing only.)

Solution

Clearly, to provide optimal access to information and services for this wide range of users, we must greatly expand our current on-line technology. To accomplish this, we will design and implement a Web-based architecture that will maximize access to public information, but will also allow us to limit on-line transactions to the appropriate groups of authorized users. We are calling this combination of a public website and a password-protected private Web site an *extranet portal*. As planned, the extranet portal will be the single entry point for our entire community of potential users – staff, families, providers, stakeholders, and citizens – to connect via the Web and access EEC information, apply for services, and perform on-line transactions. For staff, EEC work locations will be expanded from a desktop machine in an EEC office to any location with Internet access. The new infrastructure is illustrated below:

Proposed Web Infrastructure



For those users who will be authorized to have access to secure data, what they see would depend on the specific permissions we grant them. Depending on these specific permissions, they may be able to submit a child care facility license renewal application, place a child from the waiting list in care, submit a child's attendance record for billing purposes, or register for a training course – in short, they can perform a wide range of *business transactions* with us. Since EEC staff will also have access to this secure site, they will over time use it to perform all the transactions they now do in separate databases accessed from their local computers: review applications, issue and renew licenses, file investigation reports, enter fees, and approve bills.

We have analyzed our current IT infrastructure and know that substantial changes must be made. Our present computer platform, developed to support client-server technology, is inadequate to host on-line technology and an effective extranet portal.

As we design the portal, we will insure that its architecture meets ITD and industry best practice standards to secure data and prohibit illegal access, including firewalls, server management, issuance and use of digital certificates and/or similar means of user authentication, and encryption of messages. This approach will allow EEC to expand the menu of internal and external secure transactions over time.

Specific Recommendations

- 1.1 Design a plan for upgrading/expanding network infrastructure:** The comprehensive plan will be based on technical architecture that meets open systems standards and will be able to grow as we add new functionality to our systems. *Target Date: March 2006*
- 1.2 Standardize and upgrade server hardware:** This will allow us to obtain uniformity and expanded memory and processing capacity. *Target Date: June 2006*
- 1.3 Deploy extranet portal.** *Target Date: Initial rollout by December 2006; functionality to be increased continuously over time*

Cost to Build the Foundation	FY2006 Funds	\$175,000
	Future Needs	\$275,000
	Total	\$450,000

2. Data: Centralize Existing Data

Problem

Simultaneously with planning our new Web-based infrastructure, we are examining the state of our data about children and families, early education and care providers and workforce, and other child and family support resources. To develop policy based on real-time data, the data must be accessible, accurate, unduplicated, and complete. We must be able to generate reports and statistics easily, without requiring tedious data-matching exercises prior to running reports. To enable parents, providers, and citizens access to a complete view of information from any location, we must first consolidate and centralize all available information.

The following highlights the deficiencies of our current data on three key groups: children and families, early education and care providers, and the early education and care workforce.

Children and Families

- **Data Decentralized:** Except for the on-line eCCIMS system used by providers contracting with the state to provide subsidized care, all other child and family data is stored locally. As with the information on providers, child and family data on children receiving vouchers is stored by 14 separate CCRR databases, and is collected and consolidated only once a month. Data on children and families served by CPCs is only available locally and often on paper. If a family uses multiple subsidies – for example, has one child in a contracted program and another in a voucher program – that family will be entered twice, once in each system. We do not currently have any mechanism to unduplicate these families across programs.

When a family seeks care, they may be waitlisted at multiple sites to maximize their chances of receiving subsidized care. Although we consolidate and unduplicate these lists quarterly to get a picture of subsidy demand, the combining and unduplicating process is so time-consuming that the data is already obsolete by the time we can generate the report.

- **Data Incomplete:** While detail-level data about children served by public school pre-K and Head Start is available from those programs, we do not have this available in our own systems. Without this information, we cannot reliably and consistently do statewide supply and demand analysis, or track outcomes and readiness indicators for children.

Providers

- **Data Decentralized:** Basic demographic and licensing data on providers is stored in EEC's Boston central office, and is available to staff in all EEC offices. A subset of this data is published in the child care search function on the EEC Web site. For providers who accept subsidies, the same demographic information is stored locally at a CCRR and/or a CPC lead agency, and then downloaded to EEC's central office monthly from CCRRs and annually from CPCs, and stored in a separate central office database. Although both CCRRs and CPCs collect more detailed information about providers – such as vacancies, meal and transportation services, hours, rates, and curriculum – this data, which would be so useful to families in making informed decisions about care options, is stored in a variety of electronic and paper systems and *never* transferred to a central location.

In the present system, when a provider changes something as minor as a telephone number, 4 or 5 EEC staff may need to record the change – because the change must be accurately reflected in 6 separate databases:

- Licensing
- Contracts
- CCIMS
- CPC
- PCHP
- MFN

After data centralization, the change will be done only once, and all users instantly can rely on the updated information.

Although many of the same direct service providers mentioned above also manage Massachusetts Family Networks (MFN) and Parent-Child Home Program (PCHP) grants, the data for these programs is stored in yet another set of databases. It is virtually impossible to get a complete picture of these agencies and all of the ways they do business with EEC and serve Massachusetts families.

- **Data Incomplete:** While EEC is required to track and monitor the existence of all licensed providers, the agency does not have a comprehensive list of other forms of “authorized care” such as Head Start and pre-kindergarten programs run by public schools, and even less about license-exempt programs such as summer camps, drop-in programs, and faith-based programs. Secondly, while staff at EEC (and previously OCCS and ELS) have done considerable ad hoc assembly and analysis of various forms of external demographic data such as census files, poverty indexes, and workforce statistics, this external data has never been databased and related to existing EEC data in any systematic way.

Workforce

- **Data Decentralized:** At the present time, EEC has electronic information only about those early education and care professionals certified to work in group child care programs, and certain minimal data about participants in our Building Careers program. These two sets of data cannot be related, i.e., we cannot discern whether people became certified because of courses they were able to take through the Building Careers program.

- **Data Incomplete:** No data is available about those working in other types of care – school age or family child care programs, or public or private school programs. Secondly, we have no ability to track the workforce over time, to gather and analyze information on recruitment, retention, salaries, and benefits.

Specific Recommendations

- 2.1 Centralize and integrate provider information:** An essential step in the process of making EEC's data more useful both to the agency's staff and to external users will be to create a new set of central reference files on providers. These files will contain key identifying information about all of the providers with which EEC does business in any way: licensing and monitoring, reimbursement for subsidized services, or participation in any other program with which EEC is involved. All other EEC data that relates to a provider will link to this central reference file. By storing comprehensive and up-to-date information on such things as ownership and business relationships, these files will enable all EEC data that pertains to a provider or any of its "parent," subsidiary or collateral business entities to be instantly related and presented as a whole.

This centralized reference file and relational data structure are the foundation for giving parents a quick, reliable, and easy-to-use on-line source for statewide, consolidated, more in-depth information about providers. They will also help to make EEC's day-to-day dealings with providers more effective, make financial and other business processes more efficient, and provide the basis for more sophisticated and productive policy analysis. *Target date: July 2006*

- 2.2 Consolidate and centralize subsidized child and family data:** We are currently developing a child and family database that integrates existing EEC data on children receiving subsidies. This plan will also allow the Commonwealth to connect information about children participating in EEC programs with their involvement with Executive Office of Health and Human Services agencies and the public school system. *Target date: September 2006*

- 2.3 Integrate and centralize subsidy waiting list and management on-line:** In November 2005, EEC began developing an on-line consolidated waiting list. As of this writing, all separate waiting lists have been consolidated and the 400 entities that currently contribute to these waiting lists will begin using a single consolidated on-line waiting list in early December 2005. For the first time, a family entering at any site will be visible to all the programs offering subsidies. *Target date: January 2006*

- 2.4 Integrate limited existing workforce data:** As part of the development of the central provider reference files described in Recommendation 1 above, we will consolidate the limited data we have on the early childhood education workforce. No separate funding for this project is required. *Target date: February 2006*

Cost to Centralize Existing Data	FY2006 Funds	\$210,000
	Future Needs	\$220,000
	Total	\$430,000

3. Data: Improve Access to Data

Problem

Because of the issues discussed in the previous section and the lack of adequate on-line capability, families, providers, and staff have insufficient access to EEC's data. Families seeking subsidy information from any local site can discover programs and eligibility requirements only for those programs that the particular site offers. Secondly, the family's choice of provider will be limited to those accepting the particular subsidy from that program, not all providers accepting subsidies in their area. In order to get a complete picture of available subsidized care, several visits must be made to each type of site – CPC program, CCRR, Head Start agency, and EEC-contracted provider.

If subsidies are not immediately available, the provider will suggest putting the family on their local waiting list. Prior to EEC, over 400 entities statewide kept separate waiting lists for state-funded financial assistance for child care. A family wishing to maximize their chances of obtaining subsidized care had to register at multiple sites in their neighborhood, hoping they would get to the top on at least one list.

Even providers who partner with us to provide direct services have limited access to the eligibility rules and vacancies at providers who offer different subsidies. Although our Web site does have a great deal of general information, it is not structured clearly enough for the average user to readily get a comprehensive view of the programs and services we offer.

While the EEC Web site (www.eec.state.ma.us) combines a great deal of information previously managed by ELS and OCCS, it fails to present the information organized in an intuitive way designed to offer fast, easy access to the particular subsets of resources that are needed by our various user populations. For example, all parents seeking information about early education and care services in their vicinity, parents seeking information about their eligibility for subsidies, providers seeking information on EEC policies and regulatory requirements, and people doing research on early education and care, should all be able to locate the information the need with a few obvious keystrokes.

Specific Recommendations

- 3.1 Redesign existing Web site from user's perspective:** Tasks include developing a site that responds more clearly and uniquely to the needs of parents, providers, and researchers/policymakers. Search functionality will be modified so that families and agencies can access what they need without prior knowledge of EEC's bureaucratic structure. Families will be able to find resources to resolve multiple issues – financial assistance for their school age child, access to developmental screenings for a toddler, and resources to stimulate family literacy. All work will be in compliance with mass.gov standards. *Target date: April 2006*

3.2 Add new and expanded functionality to Web site: After the basic Web site restructuring is complete, we intend to add more functionality, such as calendaring of workforce development opportunities and EEC events, links to helpful Web sites, and expanded child care search capabilities using mapping and GIS tools. *Target date: March 2007*

Cost to Improve Access to Data	FY2006 Funds	\$100,000
	Future Needs	\$200,000
	Total	\$300,000

4. Data: Expand Depth and Breadth of Data

Once existing data has been integrated and centralized, and access to data has been improved, we will work on expanding our storehouse of data to meet needs that existing data cannot.

To facilitate provider choice for any family searching for early education and child care, EEC needs to maximize the collection of detailed provider data, and establish maintenance and update schedules. The information now collected locally by EEC-supported programs (CPCs, CRRs, and MFN) on providers' vacancies, schedules, rates, meals, transportation, and other services is not collected and maintained in any standardized way. Some programs update once a month, others every six months. Some record e-mail addresses and links to provider Web sites, most do not. EEC must also ensure that all providers are included, not just those accepting subsidies through EEC programs.

To increase our understanding of the efficacy of our programs and services, we need to be able to track children and families not only for eligibility and billing purposes, but also their linkages to providers, staff, comprehensive services, and sources of funding. Similarly, we need to be able to plan funding based on the analysis of supply and demand by geographic area and by income and age groups. Without detail-level data on all children, we cannot perform this vital analysis.

Little workforce information is currently available, and we will make a major effort to address this. Our current Teacher Qualification database only includes information on teachers in group child care centers who work with infants, toddlers, and pre-schoolers. This information is only current at the point of certification; it contains no data as to who remains in the workforce or for how long. In addition, no data is available for the credentials of other types of child care educators: family child care licensees, and workers in after school programs and in license-exempt and other authorized programs. Finally, except for occasional point-in-time surveys of selected geographic areas, no data exists on workforce salaries, hours and schedules, or benefits packages.

We are also planning automated data sharing with other state agencies. Presently, both the Department of Social Services (DSS) and the Department of Transitional Services (DTA) send contracted providers and CRRs, respectively, child care authorizations by FAX or mail. This not only delays the placement process, but requires redundant data entry. Although the Department of Revenue already has real-time income verification systems available, we require families to document income via the paper submission of income information. Proposed data exchanges include:

- **Nightly downloading of Department of Transitional Assistance (DTA) child care authorizations:** To increase accuracy and avoid the redundant data entry of the information into EEC systems.
- **Automated child care referrals from the Department of Social Services (DSS) to eCCIMS:** To eliminate redundant data entry as above, and reduce vacancies in contracted provider slots by implementing "just in time" placements.

- **Real-time wage income queries with the Department of Revenue (DOR):** To minimize fraud and eliminate the subsidy applicants' gathering and manual submission of wage verification.

Specific Recommendations

- 4.1 Collect more detailed provider information and make available on-line:** We intend to collect and standardize this data, establish a system for maintenance, and expand the child care search functionality so that all parents in the Commonwealth will have equal and easy access to in-depth provider information. Features will continually be added over time, including: rates, schedules, links to provider Web sites, and other descriptive information. *Target date: September 2007*
- 4.2 Expand child-level data to include identifiers for all children, to provide internal policy guidance in the aggregate, and serve as basis for longitudinal study:** This database would include demographic and enrollment information for all children, in addition to the eligibility, attendance, and financial data we already collect for subsidized children. Information on the non-subsidized population is currently non-existent – not asked for or collected anywhere. All data collection will be made on-line, eliminating the delay and expense inherent in completion and mailing of paper forms and data entry from this paper. With appropriate technology, EEC will insure the privacy and confidentiality of all data. *Target date: September 2007*
- 4.3 Connect EEC's data to other agencies, including DOE's SIMS system, to track longitudinal child outcomes:** In collaboration with DOE, we have already made arrangements to access the SIMS system for the on-line assignment of the SASID (unique State-Assigned Student Identifier) to children as soon as they enter EEC programs, beginning in FY2007. This assignment will allow us not only to link to children's school experiences, but also will serve as an important resource for assessment and program evaluation. *Target date: July 2006 for children in EEC subsidy programs; September 2007 for all children in early education and care programs in Massachusetts*
- 4.4 Expand use of COMMBridge data sharing software to automate data exchanges with DSS, DTA, and DOR.** *Target date: January 2007*
- 4.5 Design/build an early childhood educator database:** EEC's early childhood educator on-line database will:
 - Allow secure on-line entry by child care workers of their basic demographic data, education, and experience; and application for various certifications and credentials.
 - Enable providers to easily report annual information about their staff, particularly around wages, turnover, and career development efforts.

Once this basic foundation is in place, access can be added for posting and seeking job opportunities, analysis of geographic supply and demand, and other analytic activities. In addition, EEC will seek to link this data resource with relevant tracking and educational opportunities outlined in the next recommendation. *Target date: June 2007*

4.6 Design/build clearinghouse for workforce development resources: Although many different organizations offer academic coursework and/or specialized trainings to raise the professional level of the early education and care workforce, there is no way to find all of this information in one place on-line. Some of this information, even from EEC-funded vendors, is not available electronically at all. EEC intends to design and build a central on-line clearinghouse for this information. The clearinghouse will include searchable information on professional development opportunities funded directly by EEC, with links to other academic and professional development Web sites. *Target date: January 2007*

Cost to Expand Depth and Breadth of Data	FY2006 Funds	\$570,000
	Future Needs	\$2,990,000
	Total	\$3,560,000

5. Operations: Conduct Business On-line

Problem

As consistent programs and policies are developed, EEC will be positioned to move many of its current transactions with families, providers, and the early education and care workforce from mailed-in paper to on-line entry and processing. For *licensed providers*, over 6,000 license fees and applications, 1,500 follow-ups to investigation reports, and 1,000 requests for license changes currently are done by mail each year. In addition to this, *voucher and CPC subsidy providers* must submit approximately 70,000 eligibility, intake, attendance, and billing documents on paper. *Families* have no ability to apply for services, assess their eligibility for all programs, or request appointments for reassessments and referrals on-line.

From a prospective child care provider's initial request for information about becoming licensed, to the submission of follow-up information related to incident investigations, all of EEC's current transactions with its 12,000 providers are handled on paper via US Mail. Fees for renewal applications, capacity changes, and other financial transaction must be mailed in, followed by complex record-keeping and face-to-face deposit processes. Simple questions from EEC licensing staff to providers, or the reverse, must be done in writing or by telephone. With no systematic collection of provider e-mail addresses, licensors have difficulty offering technical assistance and keeping providers apprised of issues.

The subsidy programs inherited from ELS and OCCS have different eligibility rules for intake and reassessment. Families seeking financial assistance must physically visit or contact the entities that control eligibility determination for these subsidy programs. Each entity has only a partial view of what is available: the part they manage and can enroll children for. To assemble a complete picture of available care, families have to make multiple visits, adding the information they receive at each site to their knowledge of the whole.

For providers serving children financed with different subsidy funding streams, the administrative burden is formidable. EEC's subsidy programs – vouchers, contracts and CPC grants – use different payment rules and forms, and reimburse providers on different schedules. Managing this administrative burden costs providers resources that could be much better applied to serving children. Currently only one of the three systems, eCCIMS for contracted providers, is on-line.

Specific Recommendations

- 5.1 Allow on-line eligibility and intake for direct services at any location:** As EEC creates one eligibility system for all programs, parents, intake workers, and other interested parties can access all the eligibility information from any Internet site. Intake workers can guide the family through the options, maximizing parent choice

and making the most suitable match between the parent's eligibility and available funding streams. *Target date: January 2007*

5.2 Implement single on-line provider reimbursement system: The single reimbursement system will allow providers to do eligibility determinations, attendance reporting, and billing work for direct services on-line. For example, when a worker enters a child's attendance information, the system would know the child's eligibility, rate, and parent sliding fee, and calculate the correct provider reimbursement instantly. No time will be lost generating, mailing, and reviewing paper forms. *Target date: January 2007*

5.3 Automate registration for workforce coursework and trainings: Our Web-based workforce system will allow applicants to complete all registrations on-line, including fee submission, as well as receive confirmation that their registrations are complete. Applicants will be allowed to create their own secure logons and profiles, so that in subsequent transactions the system will present what it knows about the applicant, reducing the need for repetitive data entry. *Target date: June 2007*

5.4 Move licensing transactions to the Internet: We will establish an ePayments module in the extranet portal to allow credit card submission of fees that will also debit the provider's account in our provider database. Beginning with initial and renewal applications, over time we will move virtually all licensor-provider transactions to the portal – licensors' visit reports and providers' responses to these reports, change of address forms, compliance certifications resulting from complaint investigation reports, and other forms. Where possible, these responses will drop directly into our provider database, eliminating staff data entry. The EEC staff member receiving the submission can review it on-line, and then approve, reject, or edit it on-line as well. *Target Date: June, 2007*

5.5 Simplify child attendance reporting through new technologies: EEC is currently researching options such as telephony and SMART cards to provide a range of options for parents and providers to communicate any change in status. These new options would be available by June 2008. *Target date: June 2008*

Cost to Conduct Business On-line	FY2006 Funds	\$460,000
	Future Needs	\$2,000,000
	Total	\$2,460,000

6. Operations: Streamline Internal Processes

Problem

EEC staff compile a wealth of information about providers – licensing and regulatory history, subsidy monitoring reports, records of contracts and grants – but this information is stored in different locations and formats (paper files, spreadsheets, and databases) with no fast, uniform way to access it. EEC licensors and fiscal management staff cannot easily collaborate to compare information, plan joint monitoring visits, or get a holistic picture of providers. With no centralized way to schedule provider visits, EEC staff can find themselves on a licensing visit days after that same provider has had a contract monitoring visit.

As this information is consolidated and centralized as described earlier, not only will we be able to organize the data for holistic views on-line, we also will be able to utilize various business support applications to increase efficiency and productivity. Provider visits can be centrally scheduled, and staff collaboration about how to deal with “problem” providers can be facilitated.

Specific Recommendations

- 6.1 Develop integrated provider monitoring system:** EEC staff will be able to collaborate on visits and monitoring efforts; supervisors and managers will be able to quickly generate productivity reports for staff on licenses issued, monitoring visits commenced, and investigations completed. *Target date: June 2007*
- 6.2 Streamline fiscal process through MMARS interfaces:** EEC currently holds over 700 contracts with external vendors. Neither our internal contracts databases nor our provider reimbursement systems communicate directly with the State’s accounting system, MMARS. With the installation of the COMMBridge software described above, we will be able to deploy automated MMARS interfaces. This will eliminate substantial data entry and validation of fiscal data. *Target date: June 2006*
- 6.3 Improve communications through e-mail and the Internet:** With deployment of purchased software and software developed in-house, we intend to empower field staff to set up automated appointment and visit scheduling with clients and providers, map their shortest travel routes with GIS, and provide a tickler system for visits and various report due dates. *Target date: June 2006*
- 6.4 Implement on-line forms for employee-agency transactions:** EEC has a number of paper forms that will be converted to Outlook templates, allowing the information to be completed once on the e-mail form and permanently filed electronically. *Target Date: December 2006*

6.5 Install team collaboration and productivity software: EEC is a new agency creating new policies and procedures, developing new data systems, and engaging in a host of other projects requiring document sharing and team collaboration. Our present mode of collaboration is limited to common shared document folders on our network and the sharing of links to relevant Web sites. Since these are all stored at our offices, we cannot access these when away from an EEC office. We intend to deploy on-line team collaboration software to remedy this. Authorized users of this functionality on our Web site can then post documents and sources to the site, make revisions, schedule meetings, track team members' completion of assigned tasks, and schedule reviews of documents. *Target Date: June 2006*

Cost to Streamline Internal Processes	FY2006 Funds	\$220,000
	Future Needs	\$590,000
	Total	\$810,000

7. Operations: Conduct a Longitudinal Study of Child Outcomes

All of the IT improvements outlined above will provide the solid data management system necessary to report on the longitudinal tracking of child outcomes. By building a new and greatly improved database of information regarding children participating in early education and care programs, Massachusetts would be uniquely positioned to track children's progress over time across various types of care and multiple state agency involvement. Aggregate information from this longitudinal database would provide critical information to shape future policy decisions on improving the access, affordability, and quality of services to children.

However, in order to track children's progress over time, EEC must develop not only a method for storing and reporting child outcome data, as outlined in this report, but also an appropriate and comprehensive system of school readiness assessment. Such a system will draw information from multiple sources such as teachers, parents and samples of children's work; include professional development and training for teachers and providers; and be coupled with other monitoring to ensure program quality and accountability.

Therefore, the full costs associated with reporting longitudinal data on child outcomes include not only the cost of the IT capacity to support the necessary detailed data management and analysis (costs that are captured in this report), but also the costs associated with the development and deployment of an assessment system that will determine the information we need to collect on children's progress over time (non-IT costs that are *not* addressed in this report).

Once a system of longitudinal data collection, tracking and management has been put into place, EEC will be in a solid position to regularly report on the quality of early education and care programs, and the impact of these programs on children's progress. We will also be in a better position to contribute to any broader or more comprehensive study of child outcomes across all the programs that touch the lives of children and families.

Conclusion

A major impetus for the creation of the new Department of Early Education and Care was the recognition that there needed to be a comprehensive, integrated, coordinated *system* of early education and care throughout Massachusetts. An absolute prerequisite for the agency's success in achieving this is information technology resources that provide:

- a flexible Web-based platform that can support all current and future IT applications;
- a database structure that can produce complete and accurate real-time data for policy making and operational and financial management; and
- a series of specific application developments – redesign of existing ones as well as creation of new ones – to meet all of the changing business needs of EEC's diverse user populations effectively and efficiently.

This report highlights the major deficiencies of the legacy IT infrastructure inherited by EEC:

- multiple, uncoordinated systems exist to perform similar functions for different segments of the agency's clients;
- much of our data is not stored centrally, and much of it is not even stored electronically;
- the data we do have is often inconsistent and incomplete; and there is a range of additional data that we do not have but should, both for internal use and to inform and support families, providers, and other stakeholders; and
- virtually all of our business still is done using expensive and inefficient paper-based processes.

The major projects described in the report – which are designed to address these deficiencies through a new Web-based platform, database structures, and specific application developments – are recapped in *Appendix 1*. These initiatives are projected to span the period from December 2005 through FY2008, and have a projected total cost of \$8.01 million. We are seeking \$4.19 million in FY2007 and \$0.94 million in FY2008, a total of \$5.13 million in expansion funding, to supplement our available FY2006 funds plus projected available FY2007 funds.

It is important to realize that this report cannot depict in detail *all* of the application developments that we know will be needed in the near future, for the simple reason that many of them will evolve out of the comprehensive review of policies and operations that is presently going on throughout the agency. We can anticipate that as policies and practices are changed and expanded in significant ways, there will be major implications for the IT systems that support them, with additional development and implementation costs that are not captured in this report. What is certain is that the fundamental IT developments outlined here will form the essential basis for any future improvement and expansion of EEC's services.

Please note: This report does not address the IT resource needs of the community of providers, vendors, and stakeholders we regularly have interactions with. These needs will be addressed collaboratively with stakeholders as we implement the plan.

Appendix 1

*Three-Year Project Budget **

		Total Estimated Costs	FY06	FY07	FY08
1. Infrastructure: Build the Foundation					
1.1	Design a plan for upgrading/expanding network infrastructure (March 2006)	\$ 50,000	\$ 35,000	\$ 15,000	\$ -
1.2	Standardize and upgrade server hardware (June 2006)	\$ 150,000	\$ 90,000	\$ 30,000	\$ 30,000
1.3	Deploy extranet portal (Initial rollout December 2006)	\$ 250,000	\$ 50,000	\$ 150,000	\$ 50,000
	Subtotal	\$ 450,000	\$ 175,000	\$ 195,000	\$ 80,000
2. Data: Centralize Existing Data					
2.1	Centralize and integrate provider information (July 2006)	\$ 120,000	\$ 80,000	\$ 20,000	\$ 20,000
2.2	Consolidate and centralize subsidized child and family data (Sept 2006)	\$ 160,000	\$ 80,000	\$ 80,000	\$ -
2.3	Integrate and centralize subsidy waiting list and management on-line (January 2006)	\$ 150,000	\$ 50,000	\$ 80,000	\$ 20,000
2.4	Integrate limited existing workforce data (February 2006)	\$ -	\$ -	\$ -	\$ -
	Subtotal	\$ 430,000	\$ 210,000	\$ 180,000	\$ 40,000
3. Data: Improve Access to Data					
3.1	Redesign existing Web site from user's perspective (April 2006)	\$ 120,000	\$ 80,000	\$ 30,000	\$ 10,000
3.2	Add new and expanded functionality to Web site (March 2007)	\$ 180,000	\$ 20,000	\$ 140,000	\$ 20,000
	Subtotal	\$ 300,000	\$ 100,000	\$ 170,000	\$ 30,000

	Total Estimated Costs	FY06	FY07	FY08
4. Data: Expand Depth and Breadth of Data				
4.1 Collect more detailed provider information and make available on-line (September 2007)	\$ 360,000	\$ 110,000	\$ 200,000	\$ 50,000
4.2 Expand child-level data to include identifiers for all children, to provide internal policy guidance in the aggregate, and serve as basis for longitudinal study (September 2007)	\$ 500,000	\$ 50,000	\$ 400,000	\$ 50,000
4.3 Connect EEC's data to other agencies, including DOE's SIMS system, to track longitudinal child outcomes (July 2006 for subsidized; September 2007 for all in care)	\$ 120,000	\$ 60,000	\$ 30,000	\$ 30,000
4.4 Expand use of COMMBridge data sharing software to automate data exchanges with DSS, DTA, and DOR (January 2007)	\$ 120,000	\$ 40,000	\$ 40,000	\$ 40,000
4.5 Design/build an early childhood educator database (June 2007)	\$ 2,000,000	\$ 250,000	\$ 1,700,000	\$ 50,000
4.6 Design/build clearinghouse for workforce development resources (January 2007)	\$ 460,000	\$ 60,000	\$ 350,000	\$ 50,000
Subtotal	\$ 3,560,000	\$ 570,000	\$ 2,720,000	\$ 270,000
5. Operations: Conduct Business On-line				
5.1 Allow on-line eligibility and intake for direct services at any location (January 2007)	\$ 600,000	\$ 100,000	\$ 400,000	\$ 100,000
5.2 Implement single on-line provider reimbursement system (January 2007)	\$ 540,000	\$ 240,000	\$ 260,000	\$ 40,000
5.3 Automate registration for workforce coursework and trainings (June 2007)	\$ 750,000	\$ 50,000	\$ 650,000	\$ 50,000
5.4 Move licensing transactions to the Internet (June 2007)	\$ 350,000	\$ 50,000	\$ 150,000	\$ 150,000

		Total Estimated Costs	FY06	FY07	FY08
5.5	Simplify child attendance reporting through new technologies (June 2008)	\$ 220,000	\$ 20,000	\$ 100,000	\$ 100,000
	Subtotal	\$ 2,460,000	\$ 460,000	\$ 1,560,000	\$ 440,000
6.	Operations: Streamline Internal Processes				
6.1	Develop integrated provider monitoring system (June 2007)	\$ 600,000	\$ 80,000	\$ 470,000	\$ 50,000
6.2	Streamline fiscal process through MMARS interfaces (June 2006)	\$ 90,000	\$ 50,000	\$ 20,000	\$ 20,000
6.3	Improve communications through e-mail and the Internet (June 2006)	\$ 50,000	\$ 50,000	\$ -	\$ -
6.4	Implement on-line forms for employee-agency transactions (December 2006)	\$ 20,000	\$ 10,000	\$ 10,000	\$ -
6.5	Install team collaboration and productivity software (June 2006)	\$ 50,000	\$ 30,000	\$ 10,000	\$ 10,000
	Subtotal	\$ 810,000	\$ 220,000	\$ 510,000	\$ 80,000
	Grand Total	\$ 8,010,000	\$ 1,735,000	\$ 5,335,000	\$ 940,000
	Available Funds, based on FY06-07 Spending Plan	\$ 2,880,000	\$ 1,735,000	\$ 1,145,000	\$ -
	Remaining Need	\$ 5,130,000	\$ -	\$ 4,190,000	\$ 940,000

* Most projects include some post-implementation funding for ongoing maintenance.

Appendix 2

EEC Mission and Goals

EEC will lead the way in helping Massachusetts children and families reach their full potential. By providing and coordinating a range of services and assistance, EEC will continuously improve the quality, affordability, and accessibility of early education and care in the Commonwealth.

GOALS

- Support a quick and easy system to enable all families to enroll their children in an early education and care program that best meets their needs.
- Target early education and care resources to yield the greatest return on the investment of public funds.
- Be an effective clearinghouse for accurate, up-to-date, accessible information on early education and care for all stakeholders.
- Support high quality early education and care programs that reflect the diversity of the Commonwealth, strengthen families, and help children learn and grow physically, socially, emotionally, and educationally.
- Enhance the ability of early education and care programs to deliver high quality services by streamlining administrative requirements, providing educational opportunities, and supporting efficient and effective business practices.