

Federal Office of Electronic Commerce:

Performance Metrics for **FAFSA** *on the Web*

By

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Executive Summary

The Robert H. Smith Consulting Associates was engaged to develop metrics of performance for the ACES Public Key Certificate as it pertains to the Free Application for Federal Student Aid (FAFSA) student loan application process. Our goal has been: “To identify and define a list of metrics that relevant agencies can report on and that can be communicated and extended later on to additional government electronic commerce applications”. In this document we describe the metrics identified and provide a detailed explanation of the factors assessed as part of each metric identified.

To develop a successful framework of metrics, we used a methodology where we derived metrics beginning with a set of strategic objectives. We then determined the critical performance areas (CPAs) and then focused in on the actual details of the metrics required to measure each CPA. We identified the following five critical performance areas based on the strategic goals and mission of the Access America for Students initiative. These CPAs are: Customer Satisfaction, Internal Process Improvements, Performance Improvements, Public Confidence in Electronic Government Services and Privacy and Security. Each CPA is supported by a set of relevant metrics, designed to capture the current performance of FAFSA on the Web. Many of the metrics can also be extended to future government electronic services implemented by relevant agencies.

By implementing measurement of the defined metrics immediately, federal agencies will be able to observe the incremental benefits of moving paper-based services to the online media and specifically measure the benefits of using ACES certificates as digital signatures for the electronic services provided.

I. Project Background and Objective

The use of metrics to quantify, document and communicate the benefits of converting paper-based processes to e-commerce processes has become readily apparent in the business world. As part of the Vice President's initiative to "Reinvent Government," the U.S. government is also in the process of using electronic channels to provide an increasing number of traditional public services.

Under this initiative the Robert H. Smith Consulting Associates was engaged to develop metrics of performance for the ACES Public Key Certificate as it pertains to the Free Application for Federal Student Aid (FAFSA) student loan application process. Our goal has been: "To identify and define a list of metrics that relevant agencies can report on and that can be communicated and extended later on to additional government electronic commerce applications". In this document we describe the metrics identified and provide a detailed explanation of the factors assessed as part of each metric identified. These metrics will enable federal agencies to capture and report the major benefits that agencies will realize by moving from paper based processes towards e-commerce processes utilizing ACES certificates.

II. Methodology

Step 1: Reviewed Existing Access America and ACES Documents

Our team initially evaluated performance metrics for FAFSA on the Web, by trying to understand the implication of the Access America Directive. The directive strives to make the government's efficiency through the use of information technology. The first section titled "Improve the Public's Access to Government Services," points out that the public wants to carry out electronic transactions in order to gain increased access to government information, as well as to increase the speed and convenience of conducting business with the government. FAFSA on the Web is designed meet these requirements. Its purpose is to facilitate the Department of Education's processing of requests for financial aid from colleges and universities.

Our subsequent step was to review the strategic plan for Access America for Students. Students are a key group targeted by Access America through its Access America for Students Program. Since financial aid is of major concern to most students, a fundamental service provided by the Department of Education is its determination of a student's ability to pay for post-secondary education. Hence, a primary goal of the Access America for Students Program is to better facilitate the delivery of student financial assistance through the use of electronic channels.

Step 2: Conduct literature review

The following sources were used as a guide in evaluating existing performance metrics:

- ◆ Performance Measurement Guide November 1993, Department of Treasury, Financial Management Service¹
- ◆ Measuring Performance by Dr. Bob Frost²
- ◆ Measuring Business Performance by Andy Neely³

Step 3: Contacted Stakeholders

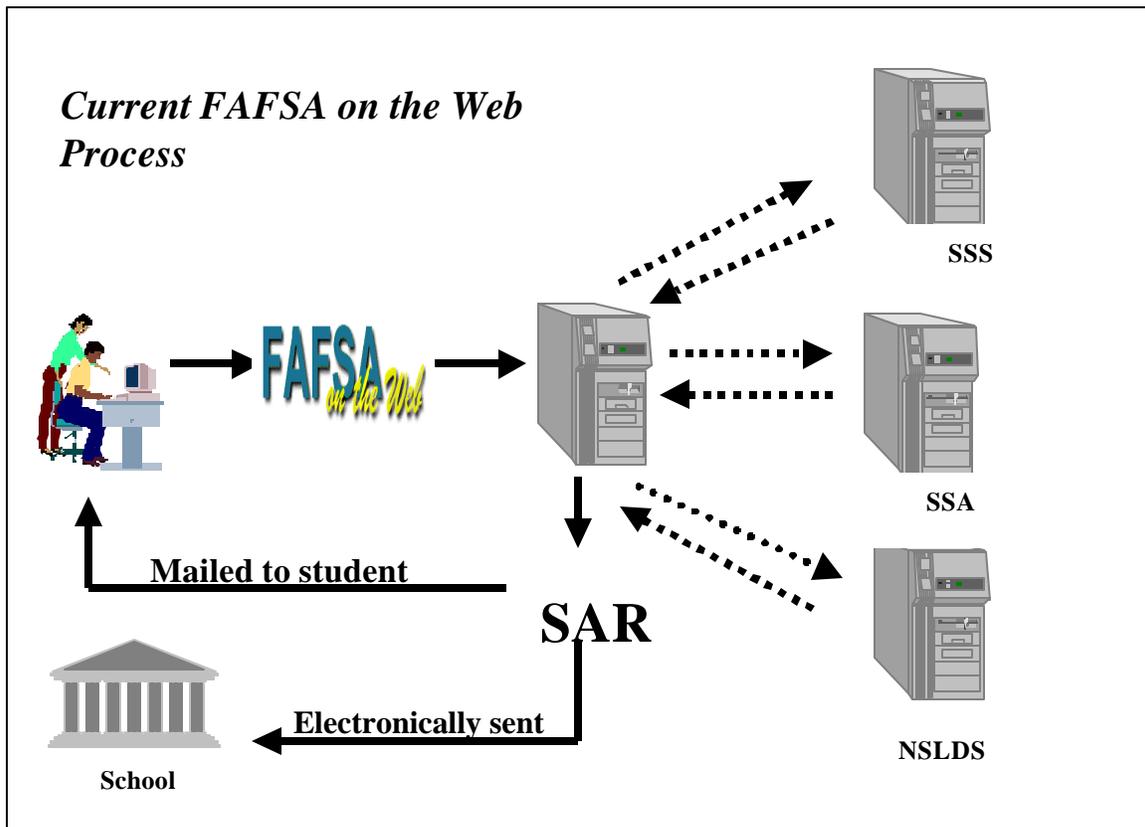
Upon gaining an understanding of the significance of the performance metrics and their use in making the government more efficient and cost-effective, our team met with staff from the Department of Education in order to build our knowledge of the FAFSA process.

The FAFSA application is the first step in the Student Financial Aid Assistance process administered by the Department of Education. The Department of Education currently receives around 10 million FAFSA applications per year. Most states require a FAFSA application on file with the Department of Education before the student can apply for state post-secondary financial aid. In the past, all applications were paper documents that were mailed to the Department of Education processing center to be keyed into its legacy systems. Currently, about 60% of the applications are received through the mail while the other 40% are received through ED express and FAFSA express (software applications implemented by the Department of Education). After an application is keyed, it is electronically processed and verified by other government agencies in order to determine student eligibility to receive federal student aid. If an application is keyed incorrectly, the student is notified by mail to send a corrected form. Following the above

eligibility tests, a Student Aid Report (SAR) is mailed to the schools, the student, and possibly to the state in order to determine further eligibility for school-based financial aid.

The full implementation of FAFSA on the Web will revolutionize the application process. Through the use of FAFSA on the Web an application will be received online by the Department of Education, eliminating the need to key in data. Also, the online application contains rigid controls that will reduce if not eliminate incorrect applications. Expected future upgrades of the online application include the use of e-mail to send the SAR to the student and an online status check feature.

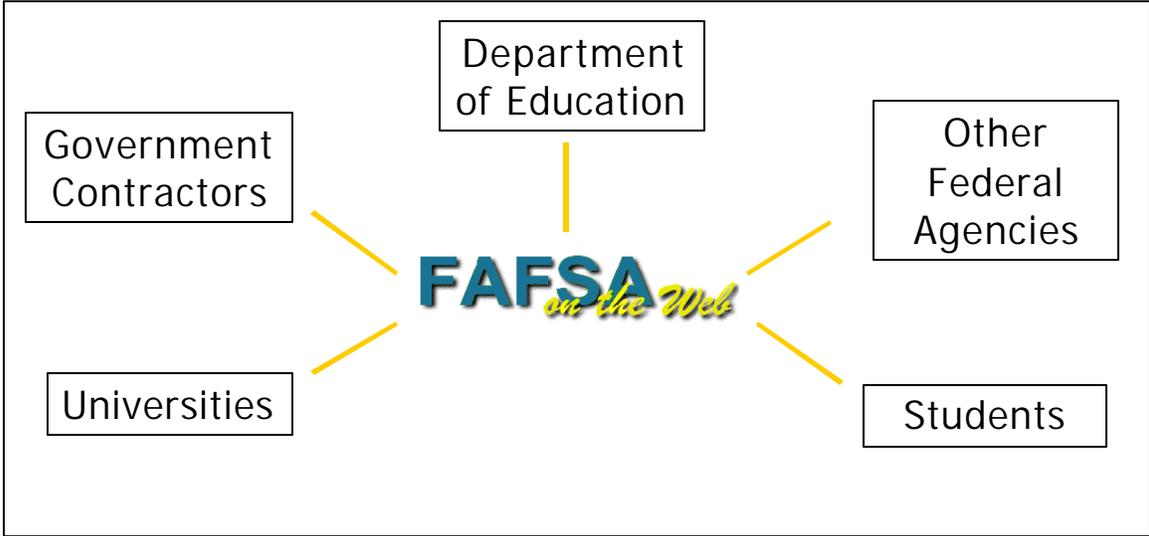
FAFSA on the Web Process Flow Chart



The above flow chart describes the current FAFSA process. Under this process, the validity of an application is verified with the Social Security Administration (SSA), the Selective Service System (SSS), and the National Student Loan Data System (NSLDS). This part of the process will remain in tact under FAFSA on the Web.

After learning about the FAFSA process, our team contacted both Digital Signature Trust Co. and National Computer Systems (two government contractors involved in the FAFSA process). Our meetings with these contractors enabled us to gain understanding of the digital signature technology as well as the back-end processes behind the FAFSA application.

Diagram of FAFSA on the Web Major Stakeholders



Step 4: Benchmarking

We used the performance measurement methodologies and models from Step 2 to develop a preliminary framework of metrics.

Step 5: Created Preliminary Critical Performance Areas (CPAs)

Our team identified the following CPAs as important in establishing a list of metrics:

- ◆ Customer Satisfaction
- ◆ Cost Efficiencies and Internal Process Improvements
- ◆ Performance Improvements
- ◆ Public Confidence in Electronic Government Services
- ◆ Privacy and Security

Step 6: Improved the List of Metrics Based on Feedback from the Client and Industry Experts

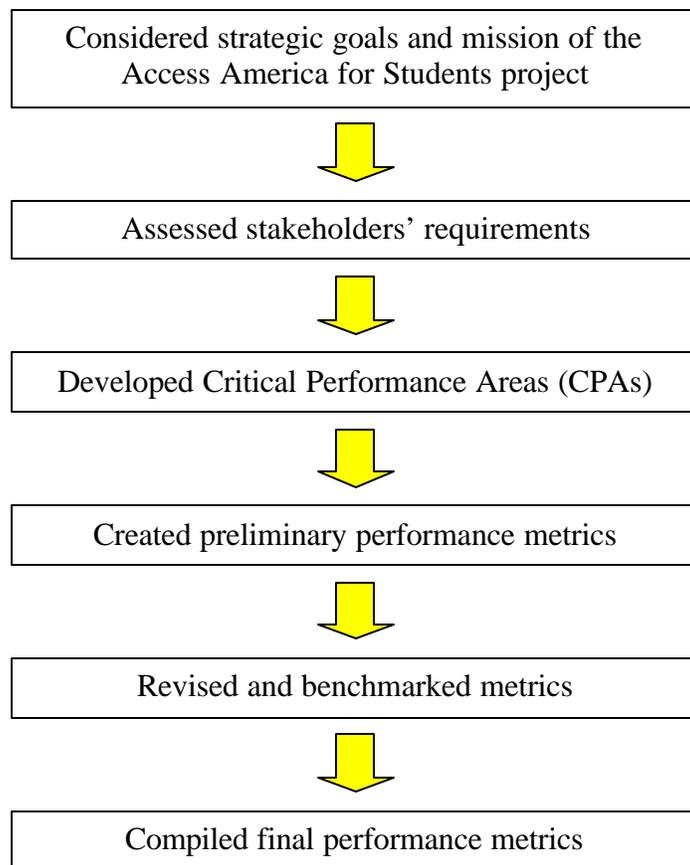
After conducting thorough research and meeting with security experts, we revised privacy and security measures to focus on prevention processes rather than system failures. We also obtained benchmarking information from the University of Maryland On-line Registration process. Finally, we developed prototype scorecards to survey customers (schools and students) to be included in the FAFSA process.

- ◆ Guidelines for the Security of Information Systems, November 26, 1992⁴
- ◆ Guidelines on the Protection of Privacy and Transborder Flows of Personal Data, September 13, 1980⁵

- ◆ Implementing the OECD "Privacy Guidelines" in the Electronic Environment: Focus on the Internet, September 9, 1998⁶
- ◆ TRUSTe Program Principles⁷

Step 7: Compiled Final Performance Metrics for FAFSA on the Web

Diagram of the Methodology for Developing Performance Metrics



III. Performance Metrics for FASFA on the Web

1. Customer Satisfaction Metrics

Customer satisfaction metrics are by their very nature subjective rather than objective. However, more and more businesses are realizing that the success of their web site depends on their ability to maintain a high level of customer satisfaction on the web. This means that businesses are putting increased emphasis on measuring customer satisfaction. For example BizRate.com, an independent shopping guide recently launched a Happiness Index to measure the satisfaction of online shoppers and to inform online retailers about the consumer's state of mind. "The index is designed to indicate the extent to which online merchants keep their buyers happy by satisfying each individual buyer in service areas that they consider important. The index weighs 10 performance attributes by their relative importance to online buyers including: ease of ordering, product selection, product prices, product information, on-time delivery, product representation, Web site navigation and looks, customer support, posted privacy policies, and shipping and handling."⁸

When applying customer satisfaction metrics to a government agency application, the measures themselves differ to some extent from a commercial site. Yet they still communicate the same basic issues surrounding the all important "voice of the customer". The goal of such metrics is to determine whether customers (both schools and students) are sufficiently satisfied with the information, quality, and performance of the site, such that they will be encouraged to use it again.

Our team identified several measures of customer satisfaction as top priority. We divided these measures into those that can be measured quantitatively and those that are more subjective, and thus must be measured using scorecards. Critical quantitative measures of e-commerce customer satisfaction include:

- ◆ System availability
- ◆ Completeness of the FAFSA data entered by the applicant on the first attempt
- ◆ Availability of required services and information to applicants

According to *Business Communications Review*, another “critical measure of E-commerce effectiveness is the time it takes to access and download the home page. The rule of thumb is eight seconds maximum, the point at which consumers are more likely to abandon the visit.”⁹

1.1 System Availability

System uptime is critical to customer satisfaction particularly during peak-use periods. The ideal situation is to have the system online and available 24 hours a day, seven days a week. While the ideal may not be possible, we recommend that system uptime, during both peak and non-peak periods be measured as a key indicator of customer satisfaction. The impact of peak vs. non-peak uptime will result in different consequences to customer satisfaction ratings. Thus, we believe it is important to track the two separately.

1.2 Completeness of FAFSA on the Web Application

When students apply for financial aid online versus using the paper application, the system corrects for errors during the actual online data entry process. However, errors are a major

reason for delay of the SAR when students apply on paper. Thus, by measuring the percent of incomplete paper applications versus percent of incomplete online applications according to a range scale, customer satisfaction levels should be demonstrably improved using the online application process.

1.3 Availability of Required Services and Information to Applicants

By measuring the availability of required services and information to applicants, we can evaluate customer satisfaction in obtaining information pertaining to the application process itself or to an application's status. The availability of required services and information to applicants can be measured most successfully using the total number of frequently asked questions (FAQ) hits versus the total number of calls to customer support centers on a monthly basis (using WebTrends software). If the level of customer calls coming into customer support centers does not diminish as FAFSA on the Web is implemented across an increasing number of participating universities and colleges, it will be evident that the site is not providing the type of data that customers need and accurately.

Beyond the metrics mentioned above, our team also identified the following key attributes as being most appropriate for measurement of both school and student satisfaction using scorecards (see appendixes B and C):

Scorecards For schools

- ◆ Ease-of-use of the disseminated data
- ◆ Perceived and actual turnaround time for the receipt of the Student Aid Report
- ◆ Overall data accuracy
- ◆ Cost savings

Scorecards For students

- ◆ Ease-of-use of FAFSA on the Web site
- ◆ Ease of data entry
- ◆ Time required to fill out the online FAFSA
- ◆ User friendliness of the application interface
- ◆ Ease of obtaining ACES certificate
- ◆ User-friendliness of the authentication process

2. Internal Process Improvement Metrics

Last January Ministers from 26 countries attended a conference in Washington D.C. entitled “Strategies for 21st Century Government: A Global Forum on Re-inventing Government”. A key lesson from this conference was that governments could achieve major savings in transaction costs through the use of document technologies. Recognizing that FAFSA on the Web will provide a similar opportunity for significant transaction cost savings, our internal process improvement measures provide the tool kit to track such expected savings. The internal process improvement CPA is centered around three main areas of performance as they relate to the FAFSA on the Web process: labor hours, materials and call centers. Below we discuss each area separately, providing the rationale behind its selection as well as an explanation on how to measure it.

2.1 Labor hours

Total labor hours required for contractor keyed applications over total # of applications received per month - Currently, the Department of Education is using a subcontractor, American College Testing (ACT), to key in the data in from paper applications received by Department’s

legacy systems. Projecting that the percentage of paper applications of total applications will decrease from its current level (60%) with the introduction of FAFSA on the Web utilizing digital signatures, it is essential to track this measure since it is a major driver of transaction costs in the current process. Tracking this measure on a monthly basis compared to on an annual basis will provide a more meaningful and sensitive data set, allowing for timely and accurate reporting of performance improvements to major stakeholders and to the public.

Total staff hours required for correction of incomplete applications per month – Enabling completion of FAFSA applications online (through the use of electronic signatures or any other enabler, such as PINs) should have a dramatic effect on the number of incomplete applications received by the Department of Education. This improvement is a result of the rigid controls incorporated into FAFSA on the Web that significantly reduce the possibility of submitting an incomplete application. Since an incomplete application requires Department of Education intervention, it is expected that the introduction of FAFSA on the Web with a digital signature will result in significant savings in the labor hours currently spent handling incomplete applications. Again, a monthly measurement will enable a sensitive and meaningful data set to better support managerial decision making and reporting.

2.2 Materials

Postage/Mailing costs – The transformation from a paper-based FAFSA process towards an electronic FAFSA process with digital signatures should reduce postage/ mailing costs for all parties involved. The Department of Education is expected to realize postage/ mailing cost savings in three main areas:

- ◆ *Per paper based application* – An increased number of online filers should reduce the number of application forms printed and delivered to schools. We suggest that the tracking of this measure be done by taking an average of the distribution cost per application form that the Department currently incurs. This average cost can then be multiplied by the number of application forms printed and mailed to schools, and can be compared on a monthly basis

- ◆ *Per error report* - Assuming the percentage of incomplete applications will shrink due to FAFSA Online controls, the Department of Education should experience a reduction in the number of error reports it currently mails to students who have submitted incomplete applications. Assuming that the average postage/ mailing cost per error report is known, this average cost should be multiplied by the numbers of error reports sent and should be compared on a monthly basis.

- ◆ *Per SAR* – In a later stage, the Department of Education is planning to e-mail the SAR copies to students rather than mailing them through Postal Service as is the current practice, which should cut its postage/ mailing costs significantly. Deriving the average postage/ mailing cost per SAR should enable comparison of this measure on a monthly basis in a similar form to the above two examples.

2.3 Paper and Printing costs

Paper and printing costs should be measured similarly per:

- ◆ *Paper based application* – by estimating the average paper and printing cost per application times the total number of applications printed
- ◆ *Error report* – by estimating the average paper and printing cost per error report times the total number of error reports printed
- ◆ *SAR* - by estimating the average paper and printing cost per SAR times the total number of SAR's printed

Again, we recommend tracking these measures on a monthly basis. We believe that the paper and printing costs should be measured separately from postage/ mailing costs to better capture the expected cost savings (i.e. – there might be internal processes resulting in paper and printing costs but not mailing/postage costs)

2.4 Call Centers

Cost per phone call times the number of calls received per month - Currently, the Department of Education is outsourcing its FAFSA customer care services to a subcontractor at a cost of \$12 per call. It is our understanding that this price per call incorporates all direct and indirect costs of handling customer calls (i.e., labor, facilities, bills, etc.). With the introduction of FAFSA on the Web (with digital signatures) including features such as the FAQ section and online status check, we anticipate a reduction in the number of calls to call centers. We recommend that this measure be tracked monthly.

3. Performance Improvement Metrics

This is the most critical CPA as the majority of students are highly dependent on financial aid to support their financial needs during the period of their studies, both in terms of tuition payments as well as personal expenses. Thus, turnaround time is the ultimate measure by which customers and stakeholders will judge FAFSA on the Web, and consequently, the main driver of customer satisfaction.

We foresee the introduction of FAFSA on the Web resulting in significant accumulated timesavings and therefore anticipate a shorter turnaround time. We recommend that the measurement of turnaround time be tracked in the following manner:

- ◆ *From application submission until an application file is created by Department of Education*
- ◆ *From application creation until completed SAR is turned to the Postal Service for delivery*
- ◆ *From application submission until completed SAR is turned to the Postal Service for delivery (complete process)*

Breaking down the turnaround time into these two subsections will allow for better control of the backend processes within the Department of Education. We recommend that the turnaround measure be tracked on a monthly basis in order to enable timely and accurate capturing and reporting of turnaround time to stakeholders and the public, as well as to allow for on-time decision making.

4. Public Confidence Metrics

Public confidence is very important for Federal agencies moving from offline services to online services. One of the stated core goals of Access America for Students Program is to “Build public confidence in conducting Internet based business with the Federal government”¹⁰. Adequate measures of public confidence help to ensure the success of Federal electronic services. Our metrics of public confidence include:

4.1 Percentage of Electronic Filers to Total Filers

Electronic filers are composed out of three groups: FAFSA on the Web filers, ED Express filers and FAFSA Express filers. The percentage of filers of each group over total filers should be measured monthly over a period of time in order to track trends in user confidence. We expect to see the percentage of the FAFSA on the Web filers increase over time, as students perceive the reliability and advantages of FAFSA on the Web and gain confidence in the online application system over all other existing alternatives.

4.2 Results of Online User Scorecards

We have provided a prototype scorecard to measure users’ confidence in the FAFSA on the Web system (see Appendix B). The scorecard asks users to rate their confidence level according to the following questions:

- ◆ Perceived privacy of application data
- ◆ Perceived security of application
- ◆ Security of U.S. government web sites
- ◆ Ease of access to privacy statement

4.3 Reliability Measures of Certificate Authentication Process

Reliability is imperative when discussing user confidence. We recommend that the following metrics be measured monthly to track the reliability of FAFSA on the Web system.

- ◆ *Uptime of authentication process*: In order to be completely reliable, the system should be available 24 hours a day, 7 days a week.
- ◆ *Uptime of data repositories*: Measuring the impact of maintenance requirements, system failure/problems and network failure/errors.

Note: Benchmarking for Public Confidence Metrics

We found the University of Maryland Registration System to be a useful benchmark as it serves the same customer set: students. Thus, this benchmark is highly relevant and enables the department of Education to better estimate its success in converting students into online users of the FAFSA on the Web application. (See Appendix D)

5. Privacy and Security Metrics

Privacy and Security is one of the four strategic objectives of the Access America for Students Program. The Access America Strategic Plan states: “...As the government migrates to an electronic, non-face-to-face environment, the security and privacy of citizens should not only be preserved, but should also be enhanced.”¹¹ We also believe that the public’s perceived privacy and security of online government services will play a major role in determining the public *confidence* in such services.

As we approached the privacy and security metrics it became evident that these cannot be measured in an ordinary way. More specifically, privacy cannot be measured, it can only be ensured by the relevant policies at hand and communicated to the public accordingly to gain their trust. Security has to be ensured by the infrastructure in place and continuously tested, but there is no measure for security and a system cannot be partially secure. A system is either secure or not secure, and it should be tested periodically to verify that the necessary security is in place, both technically and managerially.

After speaking with relevant experts in the field (Andy J. Boots from US Department of Education, Ari Schwartz from Center for Democracy and Technology, and Joel Schwarz, Assistant Attorney General for the State of New York) we decided to focus on prevention measures rather than on the actual privacy and security of a system. As a part of our metrics for Privacy and Security we developed a framework that agencies could report on with three items: privacy practices, security practices, and enforcement and redress.

5.1 Privacy Practices

When building a security and privacy metrics, we incorporated both major guidelines that have been developed for different information systems as well as common practices used by Internet companies. Thus, we utilized both government sources such as the OECD guidelines in addition to practices of Online Certification Agencies such as TRUSTe. An online system has to have a detailed privacy policy and must disclose such privacy practices in a privacy statement.

To develop the privacy framework for FAFSA on the Web, our starting point was the eight fundamental principles of the OECD Guidelines¹²:

- ◆ *Limitation of data collection*
- ◆ *Data quality*
- ◆ *Specification of purposes*
- ◆ *Limitation of use*
- ◆ *Security guarantees*
- ◆ *Transparency of practices employed*
- ◆ *Individual participation*
- ◆ *Responsibility*

In line with these guidelines, we segmented privacy issues into three higher-level targets¹³, in accordance with Online Certification Agencies' practices. The major issues that must be conveyed through the privacy statement include: notice and awareness, choice and consent and access and participation.

◆ **Notice and Awareness**

The most essential part of privacy protection is providing notice of the information practices employed and ensuring that users are aware of them. This is crucial to enable users to make intelligent decisions on what information to release to government agencies, and to ensure that users are fully aware of the agency's information utilization practices.

◆ **Choice and Consent**

Users should be given a choice as to how the personal information they provide will be used by the receiving agency as well as by additional third parties not directly involved in the process (e.g., agencies that the Department of Education has to verify information with, etc.)

◆ **Access and Participation**

Access and participation pertain to the ability of users to reasonably access and modify their own personal information. Enabling users access and participation will facilitate the achievement of the data quality and individual participation guidelines described above. Access mainly refers to an individual's ability to view data and to take necessary steps to verify the data accuracy and completeness.

In light of the discussion and framework presented above, we recommend the following metrics:

5.1.1 Existence of Privacy Policy and Statement and level of detail

The privacy principles discussed in the Access America for Students Strategic Plan must be expanded to include the following information regarding its privacy policies:

- ◆ Type of personal information collected
- ◆ Reasons for collecting such information
- ◆ Clear identification of the agency collecting the information
- ◆ Other agencies or parties that will have access to the information
- ◆ The manner in which the information will be used, and assurances that it will be used solely for such purposes
- ◆ The choices or options available to users regarding collection, use, and distribution of personal information
- ◆ Whether providing the data is voluntary or mandatory, and the consequences of a refusal to provide the requested information
- ◆ Whether users have a right to access their data
- ◆ Ways in which users can update or correct their personal information
- ◆ The users' right of redress if harmed by the improper use of the information.

5.1.2 Effectiveness of the Privacy Statement

In addition to having a privacy policy and statement in place, agencies must take into account the effectiveness of their policies. Policies must be communicated to the public in order to build the public's trust in government e-commerce services.

Therefore, the privacy statement should be posted in an easily accessible and prominent location. It should also be comprehensible, making it an effective and meaningful notice of the ways that the agency intends to use the personal information provided.

Thus, we recommend the use of the following measures and questions to ensure the effectiveness of the privacy statement:

- ◆ *The percentage of hits to the privacy statement web page*
- ◆ *Specific questions on a customer survey such as:*
 - Have you read the privacy policy either partially or in its entirety?
 - How would you rank the privacy statement on a scale of 1 to 5?
 - Having read the statement, how confident do you feel that your private information will be protected?

5.1.3 Proper collection, use and storage of information according to the policies

While compiling a privacy and security policy is important, even more crucial is its successful implementation. The successful implementation of the policies should be measured through the use of divergence reports (e.g., the degree of compliance with the privacy and security policies).

Divergence reports should be created on an annual basis with a goal of a 100% compliance.

Potential policy deviations that should be tracked include:

- ◆ Unnecessary storage of information after the specific need for that information no longer exists
- ◆ Statistics on the release of private records to third parties
- ◆ Percentage of complaints made by individuals claiming improper disclosure of personal information

Despite the expectations for minimal deviations (due to the use of ACES certificates, etc.), tracking potential deviations is crucial in order to proactively seek and identify areas for improvement.

5.2 Security Practices

As mentioned earlier, a system is either secure or not secure, period. Thus, both managerial and technical security practices should be established and communicated in order to protect against the loss, unauthorized access, destruction, use, or disclosure of data. Technical security prevents unauthorized access by including encryption in the transmission and storage of data. It also places controls on the access to data through the use of passwords and ensures that data is stored on secure servers or private networks. Managerial security limits access to data and ensures that those individuals with access to data are not misusing it for unauthorized purposes.

We envision that the use of ACES certificates will have a significant impact on improving technical security. In our preliminary metrics, we came up with metrics such as: "the number of applications tampered by unauthorized parties monthly;" "the number of successful hacks over total hacks attempted monthly," etc. However, after meeting with experts in the field of privacy and security, we recognized that these metrics might be inapplicable due to the difficulties in tracking and identifying hacking attempts. Thus, we believe that the best measures of privacy and security include the following:

5.2.1 Results of periodic security tests

In our meetings, we learned that the Department of Education currently employs experts to proactively attempt to hack into its secured systems on a biannual basis. These firms attempt to break into the system at both the technical and managerial levels. That is, the tests are conducted by professionals who are given different levels of access to the system. Various levels of access include: 1) an outsider with no login or system information 2) a regular end user of the system (such as students using FAFSA on the Web), and 3) those users with a higher level access to the system, such as employees of the agency with specific access. We recommend that the successful results of such tests be reported in order to build public confidence and support for the use and implementation of government electronic services.

5.2.2 Security measures related to use of certificates

In addition to general system security, we also want to capture security concerns related to the use of ACES certificates. A metric we believe to be important is the "number of certificates revoked annually due to compromised private keys over the total number of certificates issued."

This will track the perceived security of the use of certificates as it captures incidents where a user is concerned that his or her digital signature has been compromised. It is also easily measurable as the revocation of a certificate will require that the user provide a reason.

5.3 Enforcement & Redress

The main principles of privacy protection can only be effective if there is a mechanism in place to enforce them and users have proper rights of redress. Thus, policies and procedures for enforcement and redress should also be reported and communicated to the public.

IV. Conclusion

We strongly believe that we have developed and defined metrics that capture most, if not all of the important issues within the FAFSA on the Web process. More specifically, our metrics contain a blend of quantitative and qualitative measures and cover a wide array of performance indicators from cost and time savings through privacy and security to customer satisfaction. In addition, these metrics are general enough in scope to be extended later on to additional government e-commerce applications.

Although our metrics refer to the full-fledge FAFSA on the Web process (e.g., including the digital signature, etc.), we recommend that the metrics be implemented immediately, regardless of the current stage of the process (e.g., still in works). Immediate implementation will enable the Department of Education to gain valuable information that can be used to improve FAFSA on the Web as the project continues. In addition, it will enable a better comparison of performance over different periods of time, resulting in a more complete picture for decision-makers.

V. Appendices

Appendix A

Summary of Metrics

Qualitative Metrics

- ◆ Student Scorecard
- ◆ School Scorecard

Quantitative Metrics

1. Customer Satisfaction Metrics

- ◆ Total number of FAQ hits vs. total number of calls to customer support centers per month.
- ◆ Number of status inquiries online vs. number of status inquiries by phone per month

2. Internal Process Improvement Metrics

- ◆ Labor hours
 - Total labor hours required for contractor keyed applications over total number of applications received per month
 - Total staff hours required for handling customer support calls per month
 - Total staff hours required for correction of incomplete applications per month
- ◆ Materials
 - Postage/ mailing costs
 - Paper and printing costs
 - Paper based application
 - SAR (Student Aid Report)
 - Correction of incomplete application
- ◆ Call centers
 - Cost per call times # of calls received per month

3. Performance Improvement Metrics

- ◆ Average turnaround time
 - From application submission until an application file is created by Dept. of Ed.
 - From application creation until completed SAR is turned in to the Postal Service for delivery
 - From application submission until completed SAR is turned in to the Postal Service for delivery (complete process)

4. Public Confidence Metrics

- ◆ Percentage of electronic filers of total filers
 - FAFSA on the Web filers
 - ED Express filers
 - FAFSA Express filers
- ◆ Results of online user scorecards from participating schools
- ◆ Reliability measures of certificate authentication process such as:
 - Uptime of authentication system
 - Downtime of data repositories due to:
 - maintenance requirements
 - system failure/problems
 - network failure/errors

5. Privacy and Security Metrics

- ◆ Existence of privacy policy and statement, level of detail
- ◆ Effectiveness of the privacy statement
 - Percentage of hits to the privacy statement
 - Results of customer surveys:
 - Whether the policy was read partially or entirely
 - Rank the statement on comprehensiveness
 - Confidence, having read the statement

- ◆ Divergence reports on successful implementation of policies on:
 - Any cases of unnecessary storage of information
 - Statistics on release of private records to third parties
 - *Individuals complaints claiming improper disclosures, if any*

- ◆ Results of periodic security tests

- ◆ Number of certificates revoked annually due to compromised private keys over the total number of certificates issued.

Appendix B Student Scorecard

This Customer Satisfaction Scorecard is helpful to the Department of Education as we evaluate your experience using FAFSA on the Web. Please rate your experience and/or opinions about using FAFSA on the Web, by clicking the following boxes.

	Low	—————▶			High
Areas of Inquiry	1	2	3	4	5
Level of User Internet Experience	<input type="checkbox"/>				
<i>FAFSA on the WEB</i>					
Ease-of-Use	<input type="checkbox"/>				
Clarity of Application Process	<input type="checkbox"/>				
Available “Help” Resources	<input type="checkbox"/>				
<i>ACES Certificate</i>					
Ease of obtaining ACES Certificate	<input type="checkbox"/>				
User friendliness of authentication process	<input type="checkbox"/>				
<i>User Confidence</i>					
Perceived privacy of application data	<input type="checkbox"/>				
Perceived security of application	<input type="checkbox"/>				
Security of U.S. government web sites	<input type="checkbox"/>				
Ease of access to privacy statement	<input type="checkbox"/>				
<i>SAR</i>					
Anticipated SAR turnaround time	<input type="checkbox"/>				
Actual SAR turnaround time	<input type="checkbox"/>				

Comments:

Appendix C School Scorecard

This School Scorecard is helpful to the Department of Education as we evaluate your experience using FAFSA on the Web. Please rate your experiences/opinions about using FAFSA on the Web, by clicking the following boxes.

	Low	—————▶			High
Areas of Inquiry	1	2	3	4	5
 <i>FAFSA on the WEB</i>					
Ease-of-Use	<input type="checkbox"/>				
Web-site's quality and content	<input type="checkbox"/>				
 <i>Performance</i>					
Speed of SAR receipt	<input type="checkbox"/>				
Reduction in advisors' FAFSA related workload	<input type="checkbox"/>				
Decrease in FAFSA related complaints	<input type="checkbox"/>				

Comments:

Appendix D

Benchmarking for Public Confidence Metrics

Interviewee: Dan Symonds, Assistant of Special Projects, Office of the Registrar at the University of Maryland – College Park (UMCP)

Interview Date: Tuesday, November 30, 1999

Subject: University of Maryland Registration System

University of Maryland provides students with three registration methods:

- ◆ Paper registration submitted in person to Office of the Registrar
- ◆ By phone through University of Maryland Automated Registration System (MARS)
- ◆ Online registration through interactive web site at www.testudo.umd.edu. University of Maryland started its online registration in Fall 1997. The registration system is available from 7 a.m. to 11 p.m., 7 days a week.

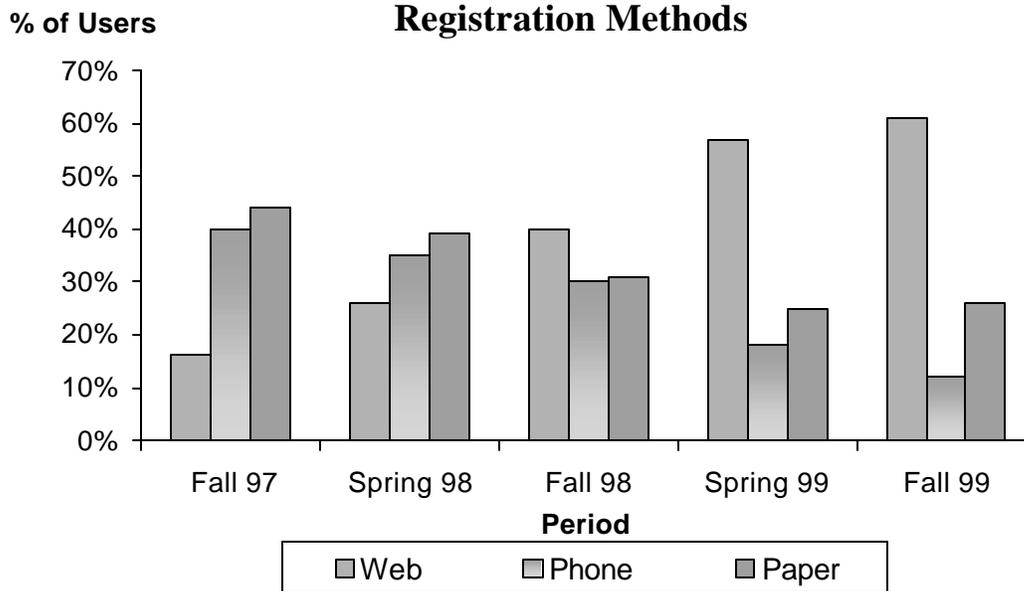
Table 1 and Chart 1 show the statistics of the UMCP Registration System during the Schedule Adjustment period, which is the first day of the semester through the 10th day, for the five semesters including Fall 1997 to Fall 1999. It is clear that the percentage of online registration has continually increased from 16.1% to 61.2% during that period, while the percentage of phone and paper registrations have decreased over time. These statistics suggest that students have gained confidence in the online registration system, as they perceive the reliability and the advantages of the online system over the phone and paper systems.

As to our question about the uptime of the UMCP online registration system, Dan Symonds suspects that the system has been operational 99.5% of the time.

Table 1: Breakdown of UMCP Registration System

<i>Semester</i>	Online/Web	Phone	Paper
<i>Fall 1997</i>	16.1%	40.3%	43.6%
<i>Spring 1998</i>	25.7%	35.3%	38.9%
<i>Fall 1998</i>	39.8%	29.6%	30.6%
<i>Spring 1999</i>	56.6%	18.3%	25.0%
<i>Fall 1999</i>	61.2%	12.4%	26.4%

Chart 1: UMCP Registration System by Registration Methods



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- ² Frost, Bob, "Measuring Performance", Measurement International, 1998
- ³ Neely, Andy, Measuring Business Performance, The Economist, UK, 1998
- ⁴ Organisation for Economic Co-operation and Development (OECD), "Guidelines for the Security of Information Systems November 26, 1992", <http://www.oecd.org/dsti/sti/it/ec/index.htm>
- ⁵ OECD, "Guidelines on the Protection of Privacy and Transborder Flows of Personal Data, September 13, 1980", <http://www.oecd.org/dsti/sti/it/secur/index.htm>
- ⁶ OECD, "Implementing the OECD "Privacy Guidelines" in the Electronic Environment: Focus on the Internet", <http://www.oecd.org/dsti/sti/it/>
- ⁷ Unknown, "TRUSTe Program Principles", http://www.etrust.com/webpublishers/pub_principles.html
- ⁸ Cox, Beth, E-Commerce Guide, "BizRate.com Launches Consumer 'Happiness Index'," http://ecommerce.internet.com/ec-news/print/0,1282,5061_257651,00.html
- ⁹ Flanagan, Patrick, "Business Communications Review"; Hinsdale; Sep 1999, <http://proquest.umi.com/pqdweb?ReqType=301&UserId=IPAuto&Passwd=IPAuto&JSE>
- ¹⁰ Access America for Students Strategic Plan, Page 2, July 30, 1999
- ¹¹ Ibid.
- ¹² OECD, "Implementing the OECD "Privacy Guidelines" in the Electronic Environment: Focus on the Internet", <http://www.oecd.org/dsti/sti/it/>
- ¹³ Unknown, "TRUSTe Program Principles", http://www.etrust.com/webpublishers/pub_principles.html