

2000-2001 ASSIST Technology Plan

(May 5, 2000)

DRAFT

2000-2001 ASSIST Technology Plan
(April 28, 2000)
Table of Contents

Section 1 - Technology Plan Overview, Background	1
A. Introduction	1
B. ASSIST Vision and Goals	1
C. Customer Goals	2
D. Technical Goals	2
E. Accomplishments	3
Section 2 - Customer Requirements	4
A. Current Customer Needs	4
B. Customer Requirements for Future Products	5
Section 3 - Technology Planning Assumptions and Principles	6
A. Technological Assumptions	6
B. Political Assumptions	7
C. Social Assumptions	7
D. General Planning Principles	8
E. Technical Design Principles	8
Section 4 - Technical Goals and Objectives	9
Section 5 - Consultation and Reviews	10

Section 1 - Technology Plan Overview, Background and Accomplishments

A. *Introduction*

The ASSIST Technology plan has been developed to communicate plans for and facilitate the discussion of ongoing technical development of the ASSIST software system. Drafted by the ASSIST Technical Advisory Committee (TAC), this plan represents a 3 to 5 year planning horizon beginning in 2000-2001 and is a revision of the 1996-1997 Technology Plan. It is intended to help guide decision making, communicate future plans to ASSIST customers, and help align inter-related activities with technical directions.

The ASSIST Technology Plan will be reviewed and updated on an annual basis in order to ensure that technical directions and software development activities remain current with customer and project needs.

There are a number of related documents that the TAC and the ASSIST Board of Directors (ABD) maintain in relation to the ASSIST Technology Plan. All of these documents, described below, are available from the ASSIST Coordination Site (ACS).

1. The *ASSIST Governance Structure* identifies the various organizations involved in the Project and describes their relationships
2. The *ASSIST Technical Coordination Guidelines* identifies key technical activities of the project that relate to the ongoing implementation and maintenance of the ASSIST Technology Plan
3. The *ASSIST Software Development Framework* identifies the specific process to be followed in any software development project to help ensure adequate planning, communication, and success of individual projects.
4. The *ASSIST Technical Environment Overview* describes the current technical environment for ASSIST.
5. The *ASSIST Strategic Plan* identifies the vision, mission, goals, objectives and activities for ASSIST developed by the Board of Directors and updated every two years.

B. *ASSIST Vision and Goals*

The ASSIST Board of Directors is responsible for communicating the statewide, intersegmental vision for Project ASSIST as well as establishing the highest level goals for the project. The current vision, mission and goals for ASSIST can be found in the current ASSIST Strategic Plan.

ASSIST customers goals are related to their respective areas of responsibility. They depend on ASSIST software products to help them meet their goals.

The ASSIST Technology Plan is an essential tool to help ensure that the ASSIST software products support participants in achieving those customer and Project goals. The Board, the TAC, and the ACS depend upon clear statements of those customer and Project goals in order to most effectively establish specific technical goals for the Project.

C. Customer Goals

The *ASSIST Software Development Framework* describes the following customers for Project ASSIST:

1. Community College, CSU, and UC students who use any ASSIST end-user software
2. Community College, CSU, and UC campuses who use any ASSIST end-user software
3. Community College, CSU, and UC campuses and other agencies (i.e. UCOP) who use any ASSIST database maintenance software
4. MIS staff at Community College, CSU, and UC campuses who are interested in integrating local systems with ASSIST data and processes
5. The system-wide offices of the three segments sponsoring ASSIST; the California Community Colleges Chancellor's Office, the California State University Chancellor's Office, and the University of California Office of the President

Each of these customer groups have goals related to ASSIST that must be clearly understood and stated in order for the ASSIST to provide effective software and services. Understanding these goals and how they are changing is one of the activities of the ASSIST Campus Advisory Committee.

D. Technical Goals

Technical goals for ASSIST are based upon the overall strategic goals for ASSIST, a set of planning assumptions and principles (outlined in Section 3), and specific customer requirements for the ASSIST software system (outlined in Section 2). These technical goals are established to help guide specific software development projects and other related Project activities.

It is important to note that ASSIST technical goals need to be synchronized with individual campus and segmental technical goals since the successful deployment and use of ASSIST software products often depend upon campus and segmental technologies.

Specific technical goals and objectives for ASSIST are described in Section 4 of this document.

E. Accomplishments

The specific objectives in the 1996-1997 ASSIST Technology Plan represented a significant change in the technical direction for ASSIST. The following is a list of significant accomplishments resulting from the prior technology plan.

- 1. *Web ASSIST*** - In October 1997, the Coordination Site deployed Web ASSIST, a web-based system for looking up information in the ASSIST database. Web ASSIST is the exclusive product that students, counselors, faculty and other staff use to view the full range of articulation information available through ASSIST. Web ASSIST is also designed to support integration with other campus web sites and computer systems that require direct access to ASSIST reports.

- 2. *ASSIST Curriculum Update System*** - In April 1999, the Coordination Site deployed the ASSIST Curriculum Update System, a web-based system for each public college and university to provide details on curricular changes for transferable courses each term. This system has been very successful in shifting the responsibility for communicating details about curriculum and changes to the articulation staff at each institution and eliminating the Coordination Site as a middle-man that had the potential to add errors and time delays.

- 3. *Increased Data Quality*** - By establishing a central curriculum database, maintained directly by each institution, the Coordination Site was able to enhance other parts of ASSIST to reference the central course data. This has resulted in a much higher level of consistency so that whenever a course is referenced, the title, units and other attributes are more consistent than in the past.

- 4. *ASSIST Articulation Data Extracts*** - In October 1997, the Coordination Site deployed new software to extract curriculum and articulation data from the ASSIST database into generic file formats. The specifications for these extracts was developed in conjunction with a broad group of college and university articulation and technical staff. Since then, many colleges and universities have used these data extracts to load ASSIST data into other computer systems such as local degree audit systems. These extracts have also been used to provide data from ASSIST for CAN and the Student Friendly System. Institutions who are in a production mode with this data request regular updates to the extracts as data in ASSIST is updated monthly.

5. ***ASSIST Articulation Maintenance System*** - The Coordination Site has continued its work on the development of the new Articulation Maintenance System which is the final part of the old Revelation-based ASSIST system to be converted. A significant amount of work has been completed and this system is expected to be deployed during 2000-2001.

When this system is deployed, it will support thin-client GUI-based interfaces for data entry and update of the central ASSIST databases, overnight publishing of data updates, automated email notification of data updates to end-users, and a range of other customer-centered features.

6. ***Web ASSIST Activity Reports*** - In January 1999, the Coordination Site deployed systems to provide campuses and other interested constituents with detailed reports about the use of Web ASSIST. Regular reports are generated daily and monthly to provide various details about numbers and types of reports requested. Campus staff can also request customized ad-hoc reports to provide information that helps them monitor the effects of various services such as increased articulation and marketing activities.
7. ***ASSIST Information Center*** - In October 1997, the Coordination Site deployed the ASSIST Information Center, a web site targeted to the operational staff at campuses. This site includes a wide range of information including, on-line training, publications, interactive forms, and access to various ASSIST products.

Section 2 - Customer Requirements

Annual customer satisfaction surveys and other feedback mechanisms help to communicate information about high-level customer needs. This does not include individual customer requests for software modifications which are coordinated directly by the ACS.

The TAC reviews customer requirements to determine how they fit within the technical goals for ASSIST and agreed upon planning assumptions and principles.

A. *Current Customer Needs*

The following customer needs are based upon ongoing discussions between various customer groups and the ACS. The annual Technology Plan review process helps to ensure that customer needs are clearly understood and that the plans are kept current over

time.

1. Facilitate access to articulation information including:
 - UCOP Transferable Course Agreements
 - CSU Baccalaureate Course Lists
 - IGETC Course Lists
 - CSU GE/Breadth Certification Course Lists
 - Articulation Agreements by Department
 - Articulation Agreements for Majors
 - Articulation Agreements for GE/Breadth
 - California Articulation Number (CAN) Catalog of Courses
2. Facilitate creating and maintaining articulation information by authorized institutions
3. Facilitate student academic planning, especially related to student transfer between California public postsecondary educational institutions
4. Reduce the redundant maintenance of information in related information systems
5. Facilitate access to transfer information by other computer systems

B. Customer Requirements for Future Products

The following customer requirements have been identified for use in planning future product features and capabilities:

1. Data Access Requirements
 - a. Human and computer generated requests for Articulation reports
 - b. Responsive, easy-to-use user interface
 - c. Does not require “high-end” technology to access
 - d. Timely access to updated information in the database
 - e. Ability to integrate ASSIST reports with campus Web sites
 - f. Multiple formats for various reports
 1. Viewable
 2. Printable
 3. Structured Data
2. Database Maintenance Requirements
 - a. Easy to use
 - b. Human data entry and update of all ASSIST data including Curriculum,

- Articulation, and Global data
- c. Facilitate high volume human data entry
- d. Electronic loading of any data according to published specifications
- e. Data modifications restricted to authorized users by institution
- f. Deny read access to selected data by other institutions until the authorized institution has approved it for release

Section 3 - Technology Planning Assumptions and Principles

In developing long range technology plans for ASSIST, the ASSIST Technical Advisory Committee has developed the following initial assumptions and principles to help guide discussions and plans. These assumptions and principles were developed based on contact with various customer groups, information gathered through related projects, and general trends observed in current technology and the California higher education system. The assumptions discussed here represent developments that are expected to occur as a result of political, social, and technological processes outside of the control of ASSIST. The principles discussed here represent developments that ASSIST desires to bring about through effective technology planning and implementation.

A. Technological Assumptions

1. There will be an increased dependence on the Internet as a primary tool for information management
2. End users will expect Web/Internet/GUI-based interfaces to software applications and web browsers will be the client of choice for many applications
3. Colleges and universities will maintain a high level of Internet access and Internet access from homes will continue to increase
4. The capabilities and costs of technology will continue to change at a very rapid rate
5. Information systems will grow to be more highly interconnected and interdependent
6. The demand for interoperable systems will continue to result in multiple technology providers with no single source emerging as the “vendor of choice”
7. End users will demand more flexible information systems that allow them to drill-down to needed information and perform more decision support functions
8. Technology available at the end of the planning horizon will be different from that

at the beginning of the process

9. The performance of computer hardware will continue to grow while prices for new hardware will remain relatively constant
10. Computer software will continue to increase in complexity
11. Relational database technology will continue as a mainstream technology
12. N-tier system configurations will continue to grow in importance and dominate in the area of large database applications
13. Technology will continue to change in unpredictable ways
14. There will continue to be a trend toward “self service” computing
15. The use of intelligent agents to proactively collect and filter useful information for specific end users may increase

B. Political Assumptions

1. ASSIST must adapt and be flexible in an educational environment undergoing significant and unpredictable change
2. ASSIST will face increased pressure to be accountable to the public, campuses, and government for demonstrating increased productivity and improved effectiveness
3. The actions of all segments of California public education will continue to affect ASSIST policies and programs
4. There will be increased interaction among the segments especially related to student transfer
5. Tidal Wave II will result in a greater focus on student transfer issues
6. The involvement of independent colleges and universities in ASSIST may raise unanticipated issues

C. Social Assumptions

1. If students have access to more complete and accurate information, they will be in a better position to make more informed decisions

2. Faculty, students, and staff will demand and need access to and support for a wide variety of technologies
3. The range of end-user computer expertise will continue to expand and systems will be expected to meet the needs of users at varying skill levels
4. End users will increasingly expect continuous availability of information from systems
5. Integrity of data, system availability and system performance directly affect end user confidence in systems
6. Information technology personnel costs may continue to increase and qualified staff may become increasingly difficult to recruit

D. General Planning Principles

1. The ASSIST Technology Plan should maintain consistency with segmental strategic technical directions whenever possible
2. All projects will be developed in accordance with the ASSIST Software Development Framework
3. Campus ownership of data will continue to be recognized
4. Products should be developed with a solid understanding of user needs
5. Products should provide value added services
 - Products should not duplicate services that are better provided elsewhere
6. Products should be planned and developed with a clear understanding and communication of implications for and support requirements of campus technical staff
7. Products should be planned and developed with a clear understanding of cost implications to campuses and the Project

E. Technical Design Principles

1. ASSIST should continue to be a free standing application, and will need to remain open to link with other systems

2. Products should be implemented using mainstream versus “cutting edge” technologies to help ensure success
3. Product design should consider support for current technologies plus one generation and minus one generation
4. Product design should consider support for multiple client and database software products
5. Data collection, creation, and maintenance should remain as close as possible to the point of origin or responsibility
6. Products should be designed for the predominant technical environment expected at the time of deployment
7. Products should support open access to ASSIST data via defined interfaces and should include appropriate documentation
8. Product design should incorporate user interface prototyping when appropriate

Section 4 - Technical Goals and Objectives

A. Goals

The following broad technical goals have been established by the TAC:

- Provide ASSIST customers with software products needed to meet project and customer goals
- Provide products that meet agreed upon common customer requirements
- Provide products that align with current campus and segmental technologies and future technical directions
- Conduct technology-related business of the project with open, customer-centered processes
- Provide effective and efficient support services for customers
- Incorporate mainstream approaches and products to help ensure success and reduce risks

B. Objectives

The following technical objectives for this technology plan have been established by the TAC:

1. Enhance the technical infrastructure of the Coordination Site to provide continuous availability of information, a fault-tolerant environment, redundant network access, and keep server hardware and software current.
2. Follow the ASSIST Software Development Framework process to enhance existing ASSIST products to meet customer needs. The Coordination Site maintains a current list of enhancements and new features requested by users.
3. Complete the development and deployment of the ASSIST Articulation Maintenance System and discontinue support for Revelation-base products
4. Continue to provide services and support for the following ASSIST products:
 - Web ASSIST
 - ASSIST Curriculum Update System
 - ASSIST Articulation Data Extracts
 - ASSIST Information Center
 - Web ASSIST Activity Reports
5. Investigate technologies to make ASSIST data more accessible to other computer systems

Section 5 - Consultation and Reviews

The 2000-2001 ASSIST Technology Plan is the second long-range technology plan developed by ASSIST. In order to help assure that ASSIST technical activities remain consistent with Board, campus and segmental priorities, this plan should be reviewed annually.

The annual review will begin each Winter with the TAC reviewing the components of the plan. In the Spring, the Campus Advisory Committee will coordinate a review of campus needs and the ACS will conduct a user satisfaction survey. The TAC will then use the information collected in these activities to recommend to the ASSIST Board of Directors any changes that may be required in this plan. Each year the Board will distribute any updates to the plan to all ASSIST customers and interested constituents.

Campus Advisory Committee (CAC) Review

The CAC review of customer needs and the technology plan primarily focuses on the high-level functional aspects of ASSIST (as opposed to specific requests for software modifications which are coordinated directly with the ACS). The CAC develops and implements a survey instrument to collect information from customers. The CAC

summarizes this information and forwards it to the TAC.

Technical Advisory Committee (TAC) Review

The TAC review of the technology plan primarily focuses on the strategic technical directions for Project ASSIST. The segmental representatives on the TAC coordinate information gathering and reviews with their respective campuses. This information is combined with information from the CAC. The TAC then develops comprehensive recommendations for changes in the technology plan to the Board.