Telecommunications and Technology Advisory Committee Meeting
TTAC Retreat May 22-23, 2014
Town and Country Hotel
San Diego, California

TTAC Members Present: Bill Scroggins, Dennis Bailey-Fourgnier, Jay Field, Michelle Pilati, Linda Thor, Morrie Barembaum, Paul Bishop, Phil Smith, Steve Crow, Tim Kyllingstad, Wei Zhou, Tim Karas, Gregory Anderson, John Freitas, Robert Coutts, Bryan Miller, Michelle Priest, Joe Moreau, Micah Orloff, Patrick Perry, Bonnie Edwards, Gary Bird, Erik Skinner, Linda Michalowski, LeBaron Woodward, Joseph Quintana, Blaine Morrow, Tim Calhoon, Kathy Booth, and Caryn Jones.

Opening:

Bonnie called the meeting to order at 10:04am. The retreat this year is focused on developing system priorities and using those priorities to write specific goals for Tech V. The process will begin with a review of the Tech III Plan to see which elements need to be brought forward that have not been completed and which have been accomplished. While the work will not focus on the three new initiatives, the committee may plan for integration with the initiatives. The intent is to look into the future and find ways to streamline services offered to the community college system.

Agenda Review:

Kathy provided an overview of the process which will include a review of the status of elements of Tech III, as well as the current strengths of the Chancellor's Office, then a brainstorming session to determine items that might be useful to the community college system. Kathy will summarize the ideas brought forward from brainstorming for the committee to prioritize after lunch. In groups, the committee will work to develop more detail and specificity for the top three priority areas. Tomorrow each of these goals will be further developed through small group discussions. The objective is to end the retreat with three clear and specific goals with four to five objectives under each goal. Members were asked to be specific about the changes they want to see made in the system, as well as how those changes could be measured and how they would benefit students. They were also asked to be visionary in looking to the future needs of the system.

Tech III Information:

Bonnie provided an overview of the Tech III Plan that was developed in 2008, so that the committee could determine whether or not any areas were still priorities that needed attention.

The intent is to use the discussion as background as the committee moves forward.

Infrastructure Initiatives: The Chancellor's Office has requested additional funding in the May revise for backup connections and for an equipment refresh for replacing "end of life" Gateway routers. The routers will cost about $2M to replace and there is currently only about $1/2M in the equipment refresh fund. There are redundant circuits to almost all of the colleges, but there are some points of failure, and there are some with only a DS3 connection. The goal is to get every campus up to at least a 1 Gig connection. Since the request made it into the May revise, it is looking promising.

Institutional Performance Toolkits: One goal in this area was automated curriculum submission, and CurricUNET is now available at the Chancellor's Office, but there are still some holes in how it will connect with the new initiatives. Staff members need the ability to review the data, and the data to support OEI, EPI and CAI needs to be developed. CurricUNET also poses a challenge to colleges when they try to submit, especially if they don't have the CurricUNET tool. Tech III also

called for an Accreditation Wizard, but there didn't seem to be any specific details for it. Jay thought that collecting information and proof of SLO achievement were two important elements. Phil also thought that attention to the new institution set goals and how they align with Scorecard could be important.

The GIS was in this area and it is currently operational at the Foundation. The effort to get all the districts mapped is complete. There is a vast amount of data in the GIS and there may be a lot more that can be done with it. LeBaron explained how it was possible to use GIS capability and MIS data from two different time periods to show movement and growth based upon GIS information. He was able to present the information as two maps, showing growth from the two different time periods.

Adjustment of IT Funding Model: Tech III brought together some background elements of centralized technology training, allocation to colleges for library learning resources, and centralized professional development. The Online Teaching Conference was expanded to two days. CMS elements and some faculty development elements will become part of the mission of the OEI.

IT Communication and Outreach: The Ambassador Program used to provide a single point of contact on campuses. They were trusted and helpful, and it was a successful program, but it was expensive. It is still important to find a way make the tools and services that are provided to the system more apparent and obvious to those out in the field. CETC was a cross-segmental collaboration group, intended to look for ways to leverage technology or identify new projects.

Digital Marketplace and Enterprise Business Services: The objective was to effectively acquire, share, market, and distribute commercial and noncommercial services. One proposal was to expand Merlot. Another was to increase interoperability with CMSs so that faculty could access learning objects more easily, perhaps connecting them with the ERP system. Additionally, the expansion of Data Mart into the K-20 system to improve longitudinal studies and link data across systems was proposed. The CSU Digital Marketplace was a project that never materialized. ePortfolios have some activity primarily around work on the PESC standards, that work is being funded by the Technology Center.

Emerging Concepts: The Online Student Services Portal is being developed within the EPI, and the Assessment Tool is being developed as part of the CAI. Would there be value to having system-wide technology efforts to record, report and analyze student learning outcomes (SLOs)? Tech III also advocated for computer, information and digital literacy; and some work has been done to establish a framework for defining digital literacy.

Bonnie asked the committee to use the ideas in Tech III, but also move forward with more detailed and specific tasks for Tech V. Gregory emphasized that Tech III had a serious lack of parallelism: small items were right next to large revolutionary ones. He suggested that Tech V have fewer goals, with a focus on important elements. Kathy agreed and mentioned that K-12 had a similar issue with their technology plan; it was a large list with many elements listed under general headings. Erik and Patrick mentioned that the Chancellor's Office Strategic Plan was probably within 12 months of closing out the remaining items; therefore TTAC should be concentrating on looking at the base infrastructure and into the future.

Tim Kyllingstad suggested that with the number of new initiatives in the system it might be useful to bring back the Ambassadors Program. Tim Calhoon thought that the most important element might be the old infrastructure and the number of data silos that are spread out throughout the system; if the foundational elements are not strong, we cannot build on top of it. Phil suggested that basic anchoring themes would be useful, for example: promoting efficiency and saving money, while assisting student who go to multiple schools; or pulling data together so that research can help us to understand our students better. Bill emphasized having an overall

attitude of technology as a foundational element that must be strong in order to meet the needs of our students. Technology is like electricity, it is an essential lifeblood element!

Digital literacy is important for faculty and students. But it is also important to remember that while some students are able to use certain technology, they still do not have a fundamental understanding of the effective use of technology in their educational lives. There are also work force issues with digital literacy; especially in helping older learners keep up with technology.

Inventory of Current Resources:

Patrick led a discussion of existing system resources and elements that might be used to develop technology further: TTIP North/Technology Center, TTIP South/High Tech Center Training Unit, OEI, EPI, CAI, Cal-PASS Plus, CENIC/Central Valley Fiber Backbone, RP Group, Foundation, Libraries, Curriculum Inventory, ASSIST, C-ID, CCCCO/MIS/TRIS, Governet, FUSION, and OER/Open Textbooks/Digital Repository. Currently there are many discrete elements and projects, but it would be beneficial to the system to have a more cohesive structure with integrated projects.

A new project that is in development is the CCC Student Success Center. The Foundation won one of two competitive grants of $500,000 for two years, funded by the Kresge Foundation. The money is to create the center, but there must also be a plan for ongoing funding. There will be a director and some staff to do student success related activities. It will provide for a consolidation of professional development activities through a hub that will gather the resources that are funded by the Chancellor's Office or individual organizations throughout the state. Through the OEI there is work on creating the front end technology for this hub. Meanwhile, the Department of Finance expressed an interest in creating a program similar to the K-12 Fiscal Crisis and Management Assistance Team (FCMAT), which the Chancellor's Office agreed would be a good idea, as long as this focus was broader than campuses in crisis. FCMAT coordinates experts to come into a district that is in trouble and provides assistance. The intent of the Chancellor's Office is to assemble a pool of experts from the field that can help colleges that have issues, but to also do preventative work in the areas of accreditation, fiscal management, compliance status, student success status, Scorecard, and so on. It would be helpful for overall institutional effectiveness. It is currently in the visioning stage, but is proposed to have nine PUI given to the Chancellor's Office spread out with: three to handle the new grant, two with Linda Michalowski, two in educational services and two in facilities and finance. There would also be $2.9M in Prop 98 funds. The grant would be competitively bid out and a lead district would be chosen to run the side of the enterprise that arranged for teams, reports, analysis, site visits, contracting with outside experts, scheduling and then delivering what they find back to the Chancellor's Office for ongoing monitoring. The lead district would be able to tap into experts needed and could be proactive in helping districts before they got into a crisis situation. Additionally, this could provide the sustainability funding required on the Student Success Center grant. Patrick is envisioning connectivity between these two grants and the ability to assist campuses that are in trouble, as well as those that want to develop best practices. Gregory emphasized the critical need for faculty buy-in from the beginning; otherwise it is unlikely to succeed. Erik agreed noting that the Academic Senate was a sponsor for the Student Success Center.

An item that all three initiatives and Cal-PASS have set aside time and effort for is the issue of centralized analytics. There are many discrete data sources: MIS, ASSIST, C-ID, FUSION, and GIS, but all are on separate discs. CAI and OEI will both need to work on data analysis; perhaps as a system there is even a need to develop a Centralized California Institute for Data Analytics. Cal-PASS could provide a location, but there will need to be staff to work with the data as well. RP Group has some capacity in statistical analysis, but there is also a need for predictive analytics. This machine learning, data mining or data science refers to making the best predictions based upon thousands of data points. LeBaron noted that in the online education world, predictive analytics can be used in real time to set up a human intervention when for example, a student hasn't logged on in x number of days. Bill thought that it might be useful to

pull together a variety of data sets: workforce data, EMSI data, Federal compliance analytics regarding gainful employment, SB 70 reporting related to gainful employment, IRS rules about private activity, financial aid compliance, and Affordable Care Act data. This is information that could be helpful with both Federal and State goals. Some colleges are just abandoning Federal services because they can't comply with the rules. If all of this data was not on separate discs, researchers could also dream up new visionary applications.   Erik explained that there would be a need for legal advice in order to assure legal compliance with the Privacy Act and FERPA, when data was shared across segments. Tim Calhoon agreed and noted that information security would also be important.

Part of the vision for TTAC at this retreat is to do some dreaming about how to aggregate professional development, where to house it, and whether or not a professional development coordinator is needed. The committee also needs to determine what kinds of things could go into the Student Success Center; perhaps some type of algorithm or reporting tool that collects and puts together accreditation status data, Scorecard data, and compliance data to determine where to set a line for a potential visit from the assistance team.

 Linda Michalowski and Dennis thought that tools that campuses could use for data analysis to help support meeting larger goals would be important, especially for smaller schools that don't have staff and resources. Tim Karas noted that in the library area leveraging at a statewide level took a lot of effort initially, but is now successfully done and provides better services for students. They are now looking at centralized library information systems, and will probably be there in the next 3-5 years. It would be useful to have core shells that colleges can use for: computer literacy, information literacy, and digital literacy. Jay thought it might be useful to start with fostering common regional efforts, and then later look toward state efforts.

 Steve brought forward a CBO request to put data out in a form that personnel at the local level can use in processes or can leverage through consortium resources. Bill noted the seriousness of IT replacement as an issue that the system will need to address, in addition to cloud strategies, because servers are at capacity. Additionally, there is a need for an Emergency Preparedness solution that will actually work in an emergency, it does not work to get phone and email messages 2-3 days after the emergency!

 The system must have accessible, ADA compliant media. Captioning is a major issue that has not been adequately addressed, and as a system it is important to stop buying products that are not compliant.

There is tremendous pressure from students to interface BYOD solutions and there is a need for reliable wireless service regardless of community college location throughout the state. Students and faculty should be able to access information without having to log into different accounts for multiple campuses. Additionally, it would be helpful to have the ability to research easily what is offered at colleges throughout the system.

 John mentioned that the Academic Senate is in the nascent stages of developing a professional development college; Delores Davison is leading up the effort this year, and leadership development will be their first project.

There are so many new projects in progress that Michelle noted it is hard to dream and imagine the future when all of the existing elements are not yet being used effectively and efficiently.

 Dennis noted that there are new requirements that loan defaults are going to be tied to the individual program, so analytics are needed to be able to figure out how to handle financial aid.

Information security is an enormous problem and one that is going to cost millions of dollars if it is not addressed. Tim Calhoon and Jeff Holden have been working on getting the CC League to

adopt an information security policy and an information security standard, but have not yet been successful.

John thought that a way to help colleges with program review for accreditation would be helpful. The Academic Senate adopted a resolution that called for the Chancellor's Office to partner with the Senate on building program review data tools. Steve agreed that the ability to tie together the budget process, program review, and student success, so that they aren't isolated processes, would be beneficial to everyone.

GIS is a way to graphically display data by layering the data and showing it on a map. It is possible for example to inventory buildings and their state of disrepair and show their locations and their status all on one view. Bill noted that they help students find their classes using an app that helps then find the location with GIS location tags and tells them how to get there. Tim Karas mentioned that pulling in EWD data and census data into GIS can be very powerful; having the poverty data by zip code, college going rates, and knowing which students come from outside of the district is useful information for districts, especially how it is changing over time. GIS data can also be used to determine placement of new centers. John thought that it would be useful to be able to have a statewide GIS license for geography courses. The company agreed to provide a site license to the Foundation for $2000 instead of their standard $10,000 license. Consolidated buying could be very helpful for some of those kinds of educational software needs; and it is important for everyone in the system to know about those opportunities that are available.

 A big barrier is the difficulty in getting data out of colleges because of the SIS that is used, in addition to the fact that IT departments are overloaded. There might be an opportunity in the consolidation of DataTel and Banner, but although that would simplify the system, there are still several companies and some of them are very unresponsive to the needs of the colleges. It might be possible to push the companies to be more responsive to system needs since 80% of the campuses are now on an Ellucian compatible product. It would also be useful to incentivize moves at the local level to the common product in a way that is not morale, time and staff crippling to do.

Visual Voting to Prioritize Action Areas:

The top three goal areas after voting were: 1) build up technology infrastructure and awareness of why this is essential to college operations and increase the use of Federated log in to increase ease of use in the system; 2) support the Student Success Center in information sharing about effective practices focused on state priorities and support a statewide professional development center; and 3) support a data analytics institute by centralizing more data sources and develop a data protocol that is consistent. Committee members worked in groups on the three goals in order to determine: How should the system guide both the development of new projects and the implementation of existing projects? What change do you expect to see in the world at the end of five years? How would this improve student outcomes?

Report Out and Discussion- Goal A:

Infrastructure and Federated ID Portability

Provide more effective and efficient technology infrastructure to the campus to free resources for instruction, student support services, and learning resources.

The group focused on what might be done as a system to substantially improve and maintain campus based technology. It might be useful to extend the deferred maintenance model into technology. A standard could be set for accessibility, use of cloud storage, classroom equipment, wireless network coverage, and so on. There would be a baseline set and then projects could be submitted in order to receive funding toward that standard. There could be an annual system

assessment, similar to the FUSION model for facilities. The standard would be based not upon using a particular product, but upon a technology outcome; for example "classroom instructional media" could include: document camera, internet access at a certain bandwidth, a display, and so on, which would focus on end-user experience and create more commonality as well as equity across campuses. It could also help with accessibility, creating a more engaging instructional environment, and increasing technology levels across the state. It would be possible to establish technology standards for infrastructure components, measure baseline status, set adoption goals, ask colleges to report on progress toward the standard, and examine cost savings. Some of the priorities would be: efficiency, cost effectiveness, equity, improving retention and success, and ensuring maintenance of technology structure statewide. The standards would need to be created cooperatively.

A team could also support planning and bulk purchasing. In order to get the best use from the purchasing consortium, it might make sense to limit the number of different products that would be included. Purchasing strategies that focused on consistency and efficiency could help provide leverage to get vendors to be more responsive to system needs.

 The funding for this project might reside under SAC with the TTIP North grant. It would probably make the most sense to look for one-time funding to get campuses up to a standard level, then use some form of subscription funding to do refreshes. The committee discussed whether this would involve campuses giving back a portion of their funding to support it, or whether it might be grant or legislature funded. Using it would not be mandated, but there might be financial incentives.

 Students and faculty should be able to access information without having to log into to multiple different accounts for multiple campuses. Developing a Federated log in that is portable across campuses would be useful, as would more extensive access to Wi-Fi.

Report Out and Discussion- Goal B:

Professional Development Center and Student Success Center

Use IT to increase access to comprehensive and high quality professional development resources to help promote student success.

Currently professional development opportunities are insufficient, and there are likely redundancies between campuses. This center would allow for faculty, administration and classified staff to have access to quality professional development geared toward promoting student success through a centralized resource.

Some possible metrics: Was the resource built? Did people use it? How frequently was it used? How did participants judge the quality?

This resource would need to be funded to be sustainable, and it would also need to be useful, or it would not be used. It is essential to coordinate professional development with all three initiatives, but especially with OEI. Online education faculty could benefit from this professional development, but everyone could be helped with web enhanced resources, even if they are not teaching online. In five years, the system would hope to see improvement in student success measures, increased sharing of resources and best practices, increased coordination, and shared understanding among all employee units, of the role that everyone plays in student success.

The goal might involve expanding the CVC with OEI and having professional development activities embedded in a centralized location, it would be a clearinghouse of professional development items. The technology would help increase exposure and access to it by members of the system. Bill explained that this might provide a way for "the one articulation officer" or other

single positions, to interact with similar people from other campuses and share best practices; those opportunities used to occur at the large conferences. Linda M noted that there are a lot of smaller conferences that go on now, which provide a chance for some of those in-person connections that are irreplaceable.

There are many changes in the system SSSP, equity plans, Title 5, and student success initiatives, so there are a lot of elements within the professional development space. Rather than creating a new initiative, this would connect them together into a hub. This might provide a place to meet virtually to work with and help each other on federal compliance issues. Analysis and analytics on outcomes and best practices could be shared through this hub. Webinars could be delivered, and a master calendar of professional development from up and down the state would also be useful. With coordination there would be opportunities to co-locate functions to get better value for all. It might also be possible to negotiate for multiple events over several years to decrease costs for shared services. Flex week events could be recorded and taped to be shared throughout the system. A hub like this could provide a resource for seeking out someone with the expertise to develop content that was desired as well.

There was a discussion of the potential usefulness of a location for threaded discussions, but Kathy and Joe Quintana explained that both RP Group and Purchasing Professionals set up those kinds of locations and found that they were not used, probably because of the barrier of another password and log-in. A Federated ID could possibly help with that issue if it is a barrier.

An assessment and credentialing function, so that credit could be registered and recorded would be useful. John mentioned that was part of the intent of the Senate's plan for a professional development college partnership, and Joe Moreau mentioned that San Diego has already built a professional development transcription program. One of the early steps should be to develop a complete inventory of what is already out there; rather than building a new one from scratch, take excellent work that exists and fill in the gaps.

 There is a need for two types of professional development: middle managers who want to be able to climb the career ladder and need ACA 201, but it isn't offered because enrollment is too low; and staff members who have a low evaluation or a deficiency to be addressed and it isn't feasible to get a group together for a training in discrimination or harassment; for both situations online training could be useful.

 Linda Thor noted that it might be useful to negotiate a lower statewide fee for organizations like Liebert Cassidy or others that have great trainings. Linda M cautioned that there is an enormous universe of professional development opportunities and objectives and some cover laws and regulations that are fairly static, while others are quite different depending upon who offers them; evaluating the offerings over the long term may be difficult but would be important to do. It will probably take time to build momentum, credibility and feedback, but it can be built up by pulling together resources from the system that are already recognized as good ones. It will also be useful to talk to various groups about where the unmet needs are in professional development. A common calendar repository are needed.

 Patrick envisioned TTAC, TTIP and the Student Success Center as being providers of a set of centralized resources, services, utilities, webinars and conferences. There would also be a master calendar, CMS hosting, conference planning services, streaming video recording and retention, some standardized courses (sexual harassment, etc.), threaded discussion, Listserv, and registration services. This project would pull together existing resources, including professional development components from the OEI, EPI, and CAI initiatives (which would use these utilities), but the content would be funded by the project.

Bill suggested that when future vendor contracts are negotiated, online training be required as part of the contract. A question to address: should a dissemination plan requirement be part of grants that are awarded as it was in the past?

Report Out and Discussion- Goal C:

Data Analytics and Data Protocol Format Consistency

Expand access to data and predictive analytics to inform student, college, and state decisions regarding statewide priorities

Outcomes of this goal would be: reduce student time to goal, improved placement, help with remediation, students take fewer courses, and it would help guide a student through their process to completion. This could help with workforce alignment by seeing what businesses want while helping colleges plan programs, and guiding students in that capacity. It would help maximize FTES and improve scheduling, while increasing student satisfaction with the process, the courses and the programs.

Ways that success in attaining the goal might be measured: data source (the final product is developed), usage, Scorecard outcomes, survey students, and analyze the data (set up a baseline and track progress on it).

Strategies to meet the goal: address system priorities, leverage all data to support student success, make technology and data core to decision making, provide efficient use of resources for students and institutions, and protect privacy while being in compliance with regulations.

 Strategies to help students: consolidate the data by putting it in one location or by facilitating the linkage of data across applications, provide dedicated and qualified staff to support it, integrate with professional development, integrate into system wide and local systems so that it can be accessed from multiple venues, and build it with a philosophy of continuous improvement.

The analytics component brings together a combination of the statistical analysis that the RP Group currently does, along with predictive analytics that are not done yet. Kathy explained that the STEPS Project had some predictive modeling which was done by some of the best researchers in the RP Group: however, attempts to replicate it locally were difficult because most researchers didn't have the expertise. Predictive analytics is a different field than typical statistical analysis. Predictive analytics answers questions like "what might be the best choice for a student like me?" based upon data from thousands of individuals. Nine colleges are now replicating the STEPS analysis and the results are summarized in a report that came out a few weeks ago. The concepts are being folded into the multiple measures project that is being run by Cal-PASS Plus and the RP Group.

Predictive analytics will take a dedicated set of resources. The RP group can get information and write a report, while predictive analytics requires somebody to be looking at the data and thinking about institutional improvement and schedules and how to be more forward thinking; then they need to engage with the field, to guide the process, look at scheduling, and other components. Machine learning enables looking at hundreds of variables simultaneously to determine which ones come to the top in being predictive of success. There is a predictive element in Sherpa which provides advice on the courses in which students were likely to be successful.

 It would be useful to get machine learning people together with RP Group people who know the data well and have them work toward getting the data together in the way that Netflix and others are doing. Netflix has crowd-sourced their efforts. Big companies put out contests to machine learning teams across the world through Kaggle.com. The teams come up with predictions for the credit rather than for the money. The community college system could crowd-source predictions within the educational community, Patrick confirmed that four-year academic institutions have offered to do this kind of work.

The process involves using some percentage of the million or so student records to train the model, then the rest of the data is used to cross validate the model. It provides a correlation, but Tim C felt that it would be better than just using test results. For example, if the predictive analytics show that a student might be able to succeed in a higher level course than the test indicated, it would be helpful to provide that information to the college to use in their placement decision. The information generated could be used by the college to assist in advising.

Predictive analytics might be useful in enrollment management, for example, trying to target a certain FTES. Some colleges have people who do this kind of prediction well, others do not. This data could be useful for equity planning and targeting academic support to those who need it the most.

FUSION (Facilities Utilization Space Inventory Operations Net) is a database that was built up by mapping every square foot of community college physical space. The data was analyzed for mechanical and physical deficiencies and the database was built from that analysis. Now, as colleges turn in their 5 year plans and other facilities related documents, the data can be looked at when the legislature wants numbers related to system needs and funding to meet those needs. It has been in existence for a long time, but has been upgraded. Fred Harris was able to use it to leverage for statewide bond needs vs Prop 39 Energy Projects and so on. There are 17 districts that funded the development, and now there is an annual assessment that the districts pay and the team of assessors go through on a rolling 3 year cycle to reassess the buildings. A recently added feature is a pilot program tied to the GIS database, where an AutoCad program will enable a virtual walk through of buildings and 3D views. This has proved a great resource for advocating for the funding needs of the CCC system with the legislature; the community college share of state bonds has increased significantly because the data is there to verify the need. A similar type of program for IT funding of needs would be useful.

John thought that this system could be helpful for Program Review in looking at 5-6 years of data for enrollment scheduling, grades and so on and comparing the department to itself, but also being able to look at trends across colleges in the system as well.

The ability to prioritize needs for at risk students based upon their first couple of semesters of work so that interventions could be set up would be useful. Kathy noted that at Mt. Sac they looked at the predictive analytics on which students would not be successful and turned that on its head and developed interventions to help those students succeed. Arise is a program that is helping those students based upon research into how to help them succeed. That is exactly the purpose of student equity planning.

Jay was concerned that data collection should not become an increased burden on colleges. It is important to collect data and code it correctly, but centralize the data collection wherever possible. Patrick confirmed that it will be collected centrally: MIS data, centralized CCApply data, CCCAssess data, Cal-PASS, Clearinghouse, and even EDD, that is the model.

Steve cautioned that it is important to footnote the data and what is relevant about it. Fiscal trend analysis that reports out his FTES actually states the FTES they serve, not that they receive apportionment on. Frequently it also depends upon what time of the year you report the data.

This entire discussion is based upon the assumption that the data is valid, if the information is not valid (students entering "accounting" because it is the first major) it will not be useful. That is apparent now with the informed student goal. There needs to be a way to identify spurious data, validate it or clean it up. Kathy noted that it is pretty clear in LaunchBoard that top-coding has been done so extensively that the data is unusable. One solution is to put the data in front of the faculty and they will speak up about the inconsistencies. The data needs to be visible so that it can be corrected, but cleanup needs to be predicated upon no penalty, because so much was built around complying with rules, that the data had no meaning. There would need to be amnesty while data was corrected. Display information in a way that colleges can use it.

Hopefully 5 years from now a comprehensive data repository will facilitate predictive analytics as a tool for decision-making and expanded research.

Expanded Work on Goals and Strategies:

In small groups answer the following:

1) Review the draft strategy language for the strategy: does it fully capture the focus of action?

2) How would this strategy be implemented within existing TTIP projects?

3) How would this strategy be implemented for new projects?

Goal A: Establish baseline standards and upgrade the technology infrastructure for CA community colleges to create a state-of-the-art business and learning environment.

Strategy 1: Create a FUSION-style system for statewide technology that incorporates standards for technology outcomes, documents college-level technology needs through an annual audit, and offers funding that enables colleges to meet standards including in the areas of security, backup and disaster recovery.

FUSION is maintained in the Chancellor's Office and similarly this technology audit system will need to be maintained. (For the understanding of everyone in the system, "FUSION like" technology audit system will need to be explained). Part of the audit would be based upon a 5 year plan that colleges would produce. Included in the audit would be a report on best practices in implementing technology, which could serve as a way to mine best practices. This would fit in well with a lot of the work done in the Technology Center currently, while part of it will need to be maintained in the Chancellor's Office. Security, cloud hosting and so on are all elements to be included that also fit into the other projects. Federated Identity is an essential component of this project. If a standardization of Federated Identity is not done, the rest will be problematic. The work that has been done within the library system provides an excellent model to reference in terms of common standards, hosting and purchasing.

There will be a need on the facilities side to verify that the standards are being met. The validator might be Tim, but there will probably be teams, like the cyber-security teams that Jeff Holden is setting up, that would need to be developed. There could be an accreditation type team that works to gather the best practices and could offer a seal of approval/validation that the standards are being met. Just establishing the standards is not sufficient, it is important to verify that security levels and other components are in place.

Paul suggested that the audit be more than hardware and software, it should include other services: using mobile apps, skill levels, types of professional development, accessibility, vendor certification, faculty certification, and prep for online students.

If a campus is deficient in an area, they could then create a funding request for the Technology Fund.

Strategy 2: Based on needs identified in annual technology audits, broker bulk purchasing that reduces prices, increases consistency, and bundles professional development with it so that people in the system can learn how to use the technology.

The committee decided to keep the focus on IT purchasing, which could start with a refined version of a bulk purchasing survey, like the one that SAC recently sent out. The results were quite diverse, some campuses were very specific (down to the brand and model number) and others were general. Those kinds of issues would need to be resolved to get the best deals for the system. It might be possible to set up a Reverse Auction model for purchasing for technology for the system. A Reverse Auction allows you to set a top price and then vendors bid below that until some cut off point. The Foundation is looking into some work with this kind of purchasing and Joseph Quintana explained that it is not currently clear whether a reverse auction could be used within the government regulations for thresholds on bids ($78,500 in a given year with a particular vendor for a particular product). Tim C thought that technology purchases might fall outside of that bid threshold and could instead go with the three low bids; Kathy flagged that item for further research.

There is a need for a technology equity scan to determine Wi-Fi needs and Wi-Fi/cell phone dead zones which could be mapped on GIS. Some campuses have many more issues in these areas and that could be an equity issue. Additionally, a 21st Century Campus Initiative might be set up to get colleges to a baseline standard for campus bandwidth, Wi-Fi infrastructure, Federated Identity via WAYF (Where Are You From), routers, and paid In Common Membership. WAYF allows for authentication for students from one college who are on another campus, which could work for community colleges, and other colleges that set up a trust relationship with each other. In Common is currently a system of 500-600 member institutions in a trust federation. Grants to strengthen security infrastructure would also be an area of need.

Bulk purchasing of a system wide library system which is a cloud based, central inventory of distributed resources would be useful. So would master textbook purchasing using Federated Identity to allow for negotiated purchasing for e-textbooks. If this was done we would need to figure out how it will impact the book stores.

Patrick noted that the legislature might be interested in providing grant funding to solve the "last 100 yard problem" by providing adequate connectivity and access on campuses, in classrooms, and in old WPA buildings. K-12 will be getting a lot of money to get wireless access to classrooms for the Common Core, and this kind of funding could provide similar help to the community college system.

Blaine thought that there might also be a need for emergency preparedness and messaging to students during an emergency, and also for backup of data, records and grades in the event of a natural disaster or other emergency.

Bill noted the need for BYOD interfaces, mobile apps and also for specific learning utilities using technology (for example in nursing). Some of the specialized learning utilities might not be needed by every campus, but they are needed. There are programs that place huge demands on IT, the server capacity, bandwidth and machine needs. In the future there may be an expansion of virtual labs and other elements in virtual space. It is important to find ways to centralize those services or programs so that it is not too much of a burden, especially on the smaller colleges.

Strategy 3: Secure one-time funding and develop an on-going means of identifying uses for one-time funding to help all colleges attain and maintain system-wide standards and establish subscription funding that enables economies of scale and creates capacity for system-wide purchasing.

This could be a project in which SAC created the standards and identified priorities, although it would need to be vetted across the system. The standards would relate to a starting point and a regular refresh cycle. They would be reviewed on a regular basis to look at new needs and elements to be incorporated into the standard. An RFP process to facilitate procurement through College Buys would need to be established. It would be helpful to have a common ERP. Patrick could ask the legislature for initial funding to bring the system up to a baseline. For ongoing

purchasing, it would make sense to set up some type of subscription process so that money would be available to provide buying power to the system. Yearly priorities that were determined would direct purchasing and negotiations. A governance system would need to be set up. Funds could support a defined refresh cycle for existing technology. There would be the potential for long-term contracts with vendors, as well as the potential for great cost savings if there is large scale participation. Bill mentioned that even with facilities, there are some districts that don't use the FUSION system, they use their own. But if this system is attractive most colleges would chose to participate.

Strategy 4: Use bulk purchasing as a lever to secure technology solutions that are tailored to the needs of California community colleges.

There needs to be a really good assessment of the environment which will be easier once the IT FUSION system is built. Once that inventory exists, we can look at the quantities, and the qualities of what the colleges have been purchasing. There might be a difference between commodity goods and large scale projects. Working under SAC look at who wants to buy and in what quantities. It is likely that there will be opportunities not just for office supplies but also for desktops, servers and other kinds of procurement. It might eventually be useful to look at purchasing curriculum software systems for the state. Those kinds of things are much more complicated, so there might be a need for a bi-furcated procurement process that addresses those differing kinds of purchasing. Another area is to identify potential needs that haven't been met. The FUSION style inventory will provide a technical mapping of the system, and what exists today, but there will need to be a programmatic way to look at the holes and the new needs for the future.

 There will need to be follow-up to determine level of product specificity and agreement on consistency. It would be useful if doing bulk purchasing on tablets, for example, to find a way to come up with agreements without having to go through the full competitive bid process. Joseph Quintana mentioned that getting good deals on products would be facilitated by getting away from particular models and products and instead looking at what the product needs to do, or what the level of performance would need to be. One element of level of performance might be pushing vendors to do more; such as requiring that training has to be included. The shared services model with CSU and UC is something to look at, and there may be value in talking to them about bulk buying as well.

It might be useful to find ways to develop service and maintenance agreements for repairs as a system rather than on an individual basis. With large system negotiations it might be possible to arrange that remote campuses just send in a broken item and have it replaced, rather than trying to get a repair technician out to fix it.

Goal B: Leverage technology to increase use of comprehensive and high quality professional development resources that promote student success.

Strategy 1: Create a searchable database and delivery mechanism for a variety of curated professional development resources for the full range of college personnel.

>Strengthen digital literacy of community college employees through @ONE.

>Expand upon infrastructure being created for OEI.

>Establish effective practices related to system priorities.

It is important to have a searchable portal, so that it is possible to subscribe to elements and have them pushed to you. The database should be available as part of a decision tree that helps you to find what you need based upon what you want to do; for example, develop materials for a

presentation. It should include an area for elements that are most used ("trending now"). In order to be searchable, the metadata will need to include: target audience, format in which it was presented, length of time of delivery, contact for presenters, and some type of "Fandango" style rating system. There should be elements in the portal that are available to particular user groups, including Listservs. An individual would be able to set up an account to track their own progress, including a place to store badges and resources. There would be a section for users who needed immediate training, with "always on" training set up by user groups.

This relates to other projects in that the conference element could be used for follow-up with a presenter, to get materials or to establish a learning community, which would help with the work of OEI in delivering professional development courses. It could also be used by mentors as a possible way to connect between mentor and trainee through some sort of internal communication system that could be set up, or as a people matching system for those who are interested in working on a particular item.

Strategy 2: Support system priorities by inventorying existing professional development resources and developing new tools and venues for information exchanges to fill gaps.

> Provide curricular maps, solutions to common problems, and expand understanding of available resources. Connect elements across initiatives. Increase use of existing resources.

If a platform with delivery, tracking, reminder, credentials, calendar, etc. is built (as described in strategy 3) then a byproduct of that will be an inventory of what is out there. Information about a session from last year or two years ago would be linked to the Powerpoint presentation and the presenter's contact information. There would be a record of what was done during Flex week. This would occur over time as items were entered in. Expiration dates would not be needed because old articles and information can still be useful and the entry date would inform users know how old they were. Joe Moreau felt that as items were entered into part of the system for managing the event, for example, that data would eventually populate the database and become an inventory. Blaine thought this would require a lot of data mining and active processing to get the information into the system. Kathy agreed noting that tagging sessions, one by one for an RP Group event, took hours of work. A machine learning element that could scrape the data would be needed.

Strategy 3: Create a comprehensive master calendar that enables all system entities to coordinate and benefit from all professional development opportunities available in the state and provide back-end services for professional development activities (including registration services, event management and CMS hosting).

This would include an interactive calendar that has a robust online interface that allows entities to post needs and events; a user could for example post, "Planning X event in November." It would provide an opportunity to include relevant national meetings and would be set up so that there were user based roles, with user specific views. There would be a link to a Speakers Bureau with references and comments on particular speakers, which would be organized by topics. Users could request content development, to find someone to develop it for them, or they could use it as a repository for presentations and to share events that were held.

Existing services that would be incorporated would include: 3CMedia for streaming events, @ONE providing registration services, information on recommendations for event management providers to connect people to, and negotiated rates using the power of the system. It could be used to establish connections for AV services (perhaps through 3-4 college districts at different locations throughout the state). CCC Confer could be used for coordinating efforts and ensuring awareness, and there could be an "opt in" mechanism for messaging about a particular topic or conference.   OEI would be used for CMS hosting, and the CMS would be used for online professional development and to track participation. Faculty members would be able to generate

a report of what they did. There would also be a reporting mechanism to track events at the state level; including the amount of participation, to serve as a way of tracking the demand and the professional development opportunities across the state.

There would need to be a governance structure. The Student Success Center could fund it, and there could be some nominal fee for services that saved districts money and time.

It would be important to get the message out to the system about the master calendar, because it would only be as good as the amount of use it has. It would probably start with a roll out on larger statewide events first; then smaller events would be added in over time.

Patrick suggested that adding in some services that would be useful as centralized common supported services: conference support, a central utility that handles conference registration services, payment processing, registration payments, and conference application hosting. (The conference app, is a piece of software that is bought or leased to set up scheduling and the conference planner, instead of a paper program; it also includes software to "rate the sessions," which provides instant feedback to the speakers.) There should also be site selection assistance, which provides past service and ratings; setting up of email kiosks at conferences; setting up of portable Wi-Fi services; and AV services. Many hotels and conference sites will not allow you to set up email kiosks and portable Wi-Fi, they want to charge you for them. However, Patrick noted that the aggregation of conference space could take place as a large negotiation of a multi-year contract, and the system could put those terms and conditions on the agreement. Having these conference support services available might make it possible for colleges to be able to afford to put on conferences again. The Professional Development Toolbox would include all the 3CMedia services: webinars, e-conferencing, video streaming and CMS hosting for venues. The back-end support will all roll into one master calendar that includes all the smaller regional conferences, as well as the larger annual ones. It would provide for great economies of scale. Commonly purchased shells for frequently needed professional development in FERPA training, sexual harassment training and others could be included, as well.

Mt. Sac currently has technical services with a big truck with AV equipment that can be driven to a venue and set up. They currently do 800 events and they hire out the unit. Patrick noted that if Prop 98 funding is solicited for this project, colleges with those kinds of services would be able to bid on it.

 It would be important to be able to filter searches: regional with spaces available, campus site selection availability and characteristics, Speakers Bureau with ratings and availability.

 Strategy 4: Establish a means of documenting skills attainment and measuring the impact of professional development.

> Can you really compare a two hour presentation to a multi-week course?

> How can you measure skills attainment and impact of training?

There will need to be an evaluation of training that is available, perhaps by broadening the focus of @ONE, with additional input from OEI. There could be tracks for professional development, with a list of courses that could build to some kind of certification. There would also need to be a means of showing how professional development courses meet Flex credit requirements. It would be useful to look at any pending agreements between campuses that might be incorporated, as well as looking at professional development that could be brought in from outside, such as EDUCAUSE. San Diego has professional development certification built around primarily locally available opportunities, which could be investigated.

Evaluating the impact of training could be challenging. It would be possible to start with near term satisfaction surveys, then a suggested follow up survey at 1 or 2 months out; did you utilize the training? If so, how are you using it? In the long term there is the potential for predictive mining but it will take a while for those numbers to build up and be investigated.

 There is an opportunity on the system level to provide some sort of skill or credit transcript service that could be provided to all of the colleges and used as a professional development portfolio for individuals, but could also be used for Flex obligation completion, or salary advancement. It should be transportable, so perhaps an employee centric service rather than an institution centric service. It might be useful to document skill attainment (badges), as well as more formal CE units and things of that sort. Erik noted that it might be useful to allow individuals to "opt in" to advertising their skill set to a larger audience for job opportunities or a Speakers Bureau.

Blaine thought that predictive analytics might help with recommending particular kinds of training to individuals based upon past performance with certain formats or approaches.

 Robert highlighted the importance of providing common professional development to faculty and staff. Sometimes faculty attends professional development and then wants to use those new skills but need staff support to do so, and staff has not been offered the same training.

Bill was concerned about having "public" badges, and the privacy rights of employees. Joe Moreau clarified that the meaning of badges are public, in that information about the standard that the badge represents is public; however, individuals choose which badges to keep in their "public backpack," and which are in their "private backpack."

Kathy made a note that issues of balancing accountability and privacy still need to be resolved.

Goal C: Expand access to data and predictive analytics to inform student, college, and state decisions regarding statewide priorities

Strategy 1: Import and aggregate information into a single data repository.

> Gather data at the state level wherever possible to minimize the burden on colleges.

> Increase access to high-value data on labor market information, and employment

> outcomes,

> Address privacy, data security, and other legal issues.

The existing protocols for importing data such as the UI wage data are important, and we could use that as a model to be expanded for the importing and aggregation of data. This is big data and the group felt that it was not their task to prescribe uses or even to filter the quality of the data necessarily, but to understand the data.

It would be useful to establish additional sandboxes (areas to play with the data to allow it to tell you trends) like the LaunchBoard in the area of economic development and workforce training. It is hard to anticipate how the data will be used, but there needs to be a way to get feedback to define those. The user should be able to play with the data for example to see if there is a trend for people who have to commute more than 20 miles, of not enrolling in vocational programs. It would be a system that is flexible enough to allow you to ask those "what if" questions.

How can we add additional data to the pool? Perhaps LaunchBoard, together with EMSI's Labor Market Information for skill competencies, and Burning Glass could provide real time employer

job announcement data. There must be a way to keep current on the data that is available to put into the mix. The group discussed using student learning outcomes (SLOs) as a data element and how they might be used. It would probably be most useful at the program level, because there is not much comparison at the course level. At the system level there are approved degree and certification programs for which the program level elements can be aggregated. They will vary, but there may be some commonalities that will be useful.

Strategy 2: Create tools that compile and visualize data to support common decisions

Provide program review and accreditation tools that allow for broader comparisons and benchmarking

Provide tools that help with Federal Compliance Reports and Student Aid Commission.

There has been an expansion of dashboards in the last couple of years, it started with Data Mart modules, Transfer Velocity Report, and Basic Skills Tracker, and has now grown with CTE LaunchBoard. CTE LaunchBoard grew beyond the Chancellor's Office MIS capacity to develop it, so it was handed over to Cal-PASS to do to a certain specification. The potential is there to build discipline specific dashboards, program dashboards, regional dashboards, and inter-segmental dashboards with feedback reports on what happens in other segments with our students. This could include providing feedback to K-12 on how students did in the community college system. GIS can function as a display mechanism for this. There are still a few queries each year that require going into the GIS database, and it is nice that the Foundation is able to handle those, but it is not currently a dedicated resource for GIS.

There are two new potential allocations that are based on GIS calculations, New Growth Calc and Equity Calc which might provide more current data to drill into. The data could be displayed in integrated advisement systems, educational planning tools, and registration systems. Sherpa is a good example of one of these Amazon-like systems. Reports are useful, but reports plus analytics on enrollment management and FTES prediction modules might be even more helpful. There was a group discussion on the issue of hot and live vs older end of term, data; this led to the questions of where do we get data, and when? Should the system pay Ellucian or PeopleSoft to build an API for a subset of data that is hot and live which can be pulled on a nightly basis? Or just use for example, fall enrollment data, which although kind of clunky, is still useful for negotiation with the legislature on growth rates.

Patrick thought that the ability to drill into the predictive analytics about FTES calculations so that you hit your prediction right on would be extremely useful to campuses. A dashboard for program review would provide a whole series of data that is available from MIS but not yet aggregated. If there were a cross campus, or cross district enrollment reporting function, it would be very useful to campuses and to OEI. It would be useful to have these tools, as well as query and research jockeys, that could be called up to answer questions from the system.

Erik noted that having a dashboard or tool of analysis that maps well with the Scorecard would be really helpful at the local level in answering questions like: How are we going to move the needle in this area? How are we going to meet this goal? What would happen if we provided orientation to all first generation students? These kinds of questions would help districts to determine what seems to be working, and what isn't.

Bill cautioned that there is a difference between providing the tool to a campus and looking at the data at system level. If you apply the same mechanism as you do at the colleges, you won't get the same results. He is concerned about providing data to people not familiar with the research models and without the understanding of the qualifications that go along with the data. A lot of the data is local. Steve agreed that, for example, everybody keeps a waitlist differently. However, looking at headcounts, and what the courses are that are being attempted might be indicative of trends that are happening. Phil noted that it also depends on how you are using the

data. If you are using it for trying to explain your Scorecard numbers, the stakes are high, but if you are trying to develop understanding about waitlist and capacity, then perfection is the enemy of the good. It is okay to have data that is not heavily nuanced; however, on high stakes issues like Scorecard the quality of the data is critical. He would hate to not have the data for the predictive analytics engine because there was too much worry about getting data in its most pristine and ideal form.

Patrick asked about setting a campus target and then looking at each course and the capacity of the course to try to meet the target. Bill explained that they use a research model with a data system that does that, it looks at a three year rolling average by course. It has breakdowns by time of day and the dean can interpret that data. The curriculum changes and the prerequisite changes so the data is informative, but not predictive. In terms of demand, waitlist is not useful; while the number of hits on a course for, "are seats available?" is indicative of demand, but provides limited usefulness because in some places there are a limited number of sections because they are short on faculty. Any kind of predictive model based on enrollment management doesn't tell you what to do, it tells you what is likely to be the outcome, and therefore it needs to be moderated by department chairs and VPs of Instruction. If you are not careful you end up thinking that predictive models can do something that they cannot do. Bill can notice trends, for example by looking at early fill rate. However later in the term, fill rate is determined by how many students will be coming to Mt. Sac. People must be trained on how to use the data and often research is needed.

Strategy 3: Facilitate the process of data validation and maintenance to provide more complete and accurate data to inform decision making.

Develop opportunities for review of current data, and provide amnesty during the clean-up period.

Be careful about doing data analytics if the data is flawed.

This will probably require dedicated resources to support it, probably through Cal-PASS. The reporting system could probably have some automated flags, but some will need end user validation about the accuracy of the data. There will need to be a heavy element of professional development to inform the user about what the data means and how it impacts them, in order to increase the use and value of the data. Perhaps there could be a FCMAT type of concept with the Student Success Center, to help update cleanup procedures as issues are found.

Questions that still need to be answered: How do you facilitate the process of cleaning up data? How is that different if the data sources aren't community college owned? This concept should be integrated with new projects; data quality should be included in the grant verbiage along with continuous improvement in back-end technology, as well as in procedural business processes. It will help to incentivize best practices if it is tied to funding. Public reports should be generated so that the data is constantly being talked about. There should be conversations about the benefits of good quality data to end users, whether for funding or from the perspective of improved student success. Additional work will be needed with external providers of the data to come up with ways to look at data quality. It would be helpful to have agreements with non-community college parties (CSU and K-12) on how they handle data. It is critical to facilitate cleaning up the data.

Having consistent definitions of data elements is also important. There is one challenge in getting the definitions right to begin with, and another in consistency in maintaining those definitions over time as personnel changes and the knowledge is not transferred. Professional development needs to be an ongoing component of data quality maintenance.

Strategy 4: Develop capacity to conduct predictive analytical modeling to assist students, colleges and the system in making plans and decisions at all levels.

Find ways to pair new data scientist expertise with the RP Group's understanding of existing data and Cal-PASS Plus's inter-segmental data warehouse.

Establish ways to port information back to students, colleges, and the system so it can be plugged seamlessly into common decision processes (advising, enrollment management, and equity planning).

Figure out how to get the data back out to colleges in a way that they can use it.

Existing TTIP resources used: use the data from the Cal-PASS Plus warehouse, and MIS data; get the data into a cloud storage system, especially for disaster recovery (Tim C may have resources for this); leverage the use of storage capacity and bandwidth to ensure that data gets there; and have it be open enough that schools can get data and colleges can do analysis within this data set.

There will be a need for intellectual capacity in the form of data scientists. It does not necessarily need to be a new initiative, but it needs to be accounted for in one of the existing initiatives. Robert cautioned not to use it for enrollment management. It would be helpful if it was integrated into planning systems at colleges for program review and budget management purposes. Elasticity in resources used would be helpful in keeping costs down. Using disaster recovery and storage through CENIC might allow the system to expand capacity as we get more sophisticated and more colleges are using it. A cloud based model, would give us the opportunity to pay as we go for only the capacity that we need at that time.

Action Item:

Kathy will consolidate the notes into a write up, which Bonnie, Gary, Patrick and Erik will build on and submit back to the committee for additional comments.

Pluses and Deltas:

Kathy thanked the committee for their willingness to work intensely and enthusiastically over the last two days.

Joe Moreau thought that it would be helpful in the future to have the ability to centrally edit documents using GoogleDocs.

Bill suggested having a discussion of philosophy and beliefs related to where TTAC wants to go. The ideas from this group are being used as levers and it would be helpful to add a statement of principles and values to the Tech V Plan so that the underlying philosophy behind it is understood. The committee agreed.

Erik thanked TTAC for helping to chart a course forward for several years, and commended the committee for the way the student success work is playing out in a substantial way.

Patrick will add to the agenda for the meeting in the fall the question of whether TTAC should increase the number of meetings each year in order to keep informed and provide oversight and input to the three initiatives. Perhaps TTAC should increase the number of meetings 3 each year in addition to the retreat.

Bonnie will send out a survey for the fall meeting date when she has some options available.

Adjournment:

The meeting was adjourned at 2:05pm.