

**National Convergence Technology Center
National BILT Meeting
May 8, 2018 – 8:30am-2:00pm**

BILT members:

Amy Arnold, City of Lewisville
Phil Andrews, Biz Smarter
Chelsea Bray, Catalyst Corporate
Curtis Burchett, NetApp
Susan Coefield, VMware Inc.
Carolyn Corbin
Vincente d’Ingianni, Raytheon

Ivor Flannery, Redline
Matt Glover, Le-Vel
Kurtis Sampson, Philips
Candy Slocum, Interlink
Scott Veibell, Cisco Systems
Glenn Wintrich
Kim Yohannan, Dell EMC

CCN Educators:

Erica Bernhardt, Gateway Technical
Pamela Betts, San Jacinto College
Michael Coffman, Collin
Kathy Fant, Collin
Mike Harsh, Collin
Jason Huebner, Waukesha County Technical
Kyle Jones, Sinclair CC
Chris Kadlec, Georgia Southern University
Manzurul Khan, Houston CC
John Kidd, Tarrant County
Raymond Koukari, Gateway Technical
Xintao Liu, Herzing University Atlanta
Stephen Lyford, Wharton County JC

Rajiv Malkan, Lone Star College
Belicia Miraval-Albornoz, El Centro
Brian Nelson, Lansing CC
Savitha Pinnepalli, Chattanooga State CC
Lenny Portelli, Seminole State
Adam Rocke, Seminole State
Brenda Steinke, Kirkwood
Benjamin Taylor, Seminole State
Greg Teets, Clark State
Dan Tuuri, Kirkwood
Dwight Watt, Georgia Northwestern
Donnie Willis, North Central Texas College

Recording link:

<https://nationalctc.webex.com/nationalctc/onstage/playback.php?RCID=9229dd279a3e9a90c305f014653abe28>

Agenda Overview, Welcome, and Roll Call

Ann Beheler – Welcome. We’re glad to have you here. This is the start of a new round for our grant. We are funded for another five years. This is the first time we’ve gotten together physically, face-to-face to discuss the KSAs since the renewal grant was funded. We’re reporting on a calendar year basis now (January to December), which means that for purposes of our reporting this meeting will probably go into next year’s report.

We are excited to have two new partners – Lone Star College in Houston and Sinclair Community College in Dayton, Ohio. Two are here from Lone Star College: Rajiv Malkan and Bruce Caraway.

Bruce – I mostly serve the north area of Houston. I’m from the University Park campus. I teach programming and computer science.

Rajiv – I’m Rajiv Malkan, I’m at the North Harris campus. We have six campuses in Houston.

Ann – Rajiv is going to be teaching a track at Summer Connections that covers various tools for Business Intelligence, Tableau and Power BI. The other new partner, Sinclair, was one of the IT powerhouses in the NSF arena when I got

started back in the early 2000, but then they started doing other things. They're heavily involved again, and we're really glad to have them.

All of this is very strategic. We want the partners across the nation to be strong enough to put together regional hubs. We're not going to call them centers because that gets everybody confused. You can't have regional centers under the NSF anymore. Regional hubs can do a lot of what we do. At the end of five years, our funding is gone. We won't be allowed to apply for another grant, so we have to turn it over to somebody else to handle the national work. You can look at five years and say, "That's a long time." No, it really isn't. I feel a real sense of urgency to get going and finish some things we've gotten started.

GOAL 1 – Program Improvement

Ann – This goal is all about meeting workforce needs and that's where the BILT fits in. Our quarterly BILT engagement is extremely important. Today's annual KSA analysis is also very important. All of that is viewed favorably by the National Science Foundation. They are, in fact, now telling grants that they want to fund but lack heavy business engagement to contact us and find out about the BILT model. The NSF program officers seem to think the BILT is the best way of engaging employers. Based on the KSA analysis today, we'll identify the curriculum gaps that we need to fill. We will get that done and disseminated. We're also teaching faculty just like we have for many, many years. We are hosting Working Connections again this summer.

Mark Dempsey – We have 92 registered so far.

Ann – We will have about 100. We will continue to do longitudinal surveys with the people that come to those training events. It's nice to train a faculty member, but we really train the faculty so they can teach the student. And by the way, it's about 108,000 students have been effected since 2009, I think.

GOAL 1

GOAL I - Program Improvement

Meet workforce needs by incorporating the Internet of Things, cloud architecture, Software Defined Networks, edge computing and other emerging technologies into curriculum to equip faculty to train students in emerging convergence technologies supporting end-to-end communications via secure mobile networks so that graduates are readily employable upon completion.

Objective A – Effectively engage Business and Industry to lead all curriculum efforts.

- Quarterly BILT meetings and BILT engagement
- Annual KSA job skills validation
- Special KSA meeting for intersection of IT and another industry



GOAL 1 continued

GOAL I - Program Improvement

Meet workforce needs by incorporating the Internet of Things, cloud architecture, Software Defined Networks, edge computing and other emerging technologies into curriculum to equip faculty to train students in emerging convergence technologies supporting end-to-end communications via secure mobile networks so that graduates are readily employable upon completion.

Objective B - Invigorate classroom curriculum based on job task analysis.

- Update and disseminate curriculum based on BILT KSAs.



GOAL 1 continued

GOAL I - Program Improvement

Meet workforce needs by incorporating the Internet of Things, cloud architecture, Software Defined Networks, edge computing and other emerging technologies into curriculum to equip faculty to train students in emerging convergence technologies supporting end-to-end communications via secure mobile networks so that graduates are readily employable upon completion.

Objective C - Invigorate faculty to teach emerging technologies courses through professional development.

- Working Connections events
- Webinars – both national and via regional hubs
- Longitudinal surveys to measure “true impact”



Scott – You’ve been doing this for a long time, and you have been creating programs to train students. Over the past fifteen years, have there been any other results of this type of effort? Maybe the BILT is one of those. I’m just curious. In addition to simply providing curriculum for adults, have there been any other results from this work?

Ann – Yes, there have been other results. The BILT is a very big model that we’re now training people to use all across the U.S. You would think that it wouldn’t be that hard to train people to use it, but it is. We’re working with our 64 colleges across the United States to actively implement a business process like we use here with you. There’s still a kind of bias at some schools: they already know what they’re doing, they just want the business people to come in and sign off on the curriculum. Even when the schools do discuss with the businesses, it may not get down to co-ownership attitude. We continue to work on that. I didn’t think it would be as hard as it is to do this, but it is. That is one thing that continues to happen.

The other thing is we are always playing catch-up with the changes in the industry. You know that as well as I. We spend a lot of time doing that and helping the 64 colleges get through that. We’re going from 64 to 90 in the Convergence College Network. We are actually adding a heavy emphasis on high schools, which we really haven’t before, and on universities. We finally realized the last time we talked to you about our KSAs that the new technologies – like Internet of Things and DevOps and automation – were not going to fit in 60 semester hours. We have to have a very active involvement with both the high schools and the universities.

Mark – Another outcome is the Convergence College Network (CCN) community.

Ann Beheler – Yes, we have a community of practice among that group. Not only are they getting information from us, but they're also beginning to help each other.

You're right, essentially, that we're doing many of things that we were doing before. A lot of what we're doing now is deeper and broader, but they're a lot of the same things – program improvement, keeping up with the times, training faculty, disseminating what we do for others so they don't make the same mistake we made. We call those "lessons learned."

Scott – I was going to add one thing that I thought really differentiated this from just being courses to learn. That differentiator is moving the focus from learning theory to learning the skills sets necessary to be successful in the market place. It's gone from "Oh, I took 20 college courses" to "I took courses and built a portfolio and got job skills that were relevant and learned how to do different things associated with the market place." I think that's one of the big things the BILT brought forward moreso than just the curriculum.

Matt – We also helped influence the TechHire initiative at the White House. That's been three years ago now. There are a lot of interesting collateral improvements that occurred through this process.

Ann – And we would have never received the \$20 million Department of Labor TAACCCT grant that ended up buying a lot of equipment for seven colleges nationally that had no money to buy equipment. But the essential elements of what we do in our grant are industry co-led, and that still scares some faculty across the country.

Scott – Yes, I knew that, but I think it should be part of what we advertise because I think there have been some phenomenal outcomes above and beyond curriculum.

Ann – There have been. We include the outcomes in our annual reports.

Scott – Okay.

Ann – We also advertise them to our National Visiting Committee each year.

Glenn – One thing a lot of people don't realize is the number of colleges that utilize the labs.

Ann – 275 schools. But they're not sharing our hardware. The 275 are taking advantage of the labs we created. Some of them may have their own virtual lab hardware. That's one thing we're pushing hard: to get more CCN schools to take advantage of the virtual labs we host. I think we are at about six colleges that are willing to do that.

Goal 2 – Increase Completers

Ann – We have worked with all of CCN colleges on aspects of retention. We hosted a "Diversity Summit" program last year. We had nine colleges working on an approach to either grow women or ethnic minorities in terms of enrollment or retention. We're going to get the results in June of this year. However, two of the colleges had already achieved their goals as of this past fall, which was great. I don't know what the long-term implications will be. The idea was for them to try something out and gather enough data to prove effectiveness to get money from their college so they could support their efforts on an ongoing basis. I don't know the results yet; it's too soon to tell. We will host another "Diversity Summit" cohort.

We have a really big push to grow the number of women involved in IT. Women are 50% of the population, but less than 20% of the IT workforce is women. We have room to grow. The principles for inclusion and diversity are known. They just have to keep being applied over and over again.

We are also gathering research data on student portfolio projects, and that starts this fall. The BILT has been talking to us for years about having the students create projects and bring them to the interview. It could be online or just a project in a notebook. We're doing that with all the partners this fall. They're going to do two class sections of what would be the sophomore-level classes. Those students will be getting out of school pretty soon; we can follow them as graduates and determine whether or not the ones that have portfolios fared better than the ones that didn't. It's just a start. It won't be solid data. I think it's more anecdotal or descriptive data.

The Working Connections event helps create completers because we keep the faculty up to date. We also talk about pedagogy. That is, we discuss methods of keeping people in class and teaching them employability skills. Those are strategies for improving student outcomes, as opposed to just relying on content knowledge. Content knowledge is a piece of it, but we have proven over and over again that it takes more than content knowledge to really be successful.

University of North Texas also has a BAIT (Bachelor of Arts in IT) program that takes our workforce courses and transfers them. Collin College is implementing a Bachelor's in Applied Technology in IT.

Mike Coffman – We recently had an employer meeting of 70 employers from the area. It was actually more “think tank” than it was BILT. The question was: if we offer an applied bachelor's degree, what areas would the employers like to see us cover? It's still more hands-on than theoretical, but what do you want? Do you need software developers? Do you need more networking engineers? Do you need somebody capable of AI programming? Although, I'm not sure we will get that in a bachelors. What are the top three jobs you can't fill? It was a very broad ranging meeting to let them tell us what they need.

Scott – This is Collin College offering that whole bachelors?

Mike – Yes, this is Collin College.

Scott – Okay, cool.

Matt – And they're offering it at \$10,000-\$12,000 for the whole degree.

Mike – We will not be changing the tuition rates. The bachelor's degree will remain the same and that's \$50 a credit hour. Not counting your books or that kind of thing, for \$10,000 - actually a little less - you can get your bachelors degree. We think that will be attractive if for no other reason than from a financial standpoint. At the meeting, we took a pencil-and-paper-style survey in addition to small round table discussions. We broke up into groups of about six, had a note taker with each group. We are compiling all of that information and when we get it, we will start looking at exactly which direction we're going to try to push this.

Ann – Then we do the KSAs.

Mike – Correct. Once we get the direction figured out, then that will be when the BILT gets formed, and it's time to ask “Okay, what do we need to cover?” We will start looking at curriculum and go back and forth with the BILT several times before we implement.

Ann – There are a lot of approvals that have to take place. We're assuming it's done, but it's not done.

Matt – How many degrees are you looking at covering just one or there going to be three or nine, how many in the BAT?

Mike Coffman – One.

Ann Beheler – I think we can only have one, but from what I understand we could have majors within.

Mike Coffman – We may be able to build a track or two off of that particular degree. I might be able to give two or three tracks in Information Technology. There are hoops I have to jump through to get this thing through. One of the biggest reasons that I wanted a large committee for this is that I have to show regional need if I overlap anything with the four-year schools that are in this area. So, if another school within the 50 mile radius has a Bachelors in Information Technology, I have to prove that it is locally sufficient for the state of Texas to allow me to overlap it.

Scott – Even though you will do it at one-tenth the cost.

Ann – That doesn't factor in when you're trying to overcome overlap. Just in cybersecurity alone we're turning out in this entire whole region only 600 graduates a year and there are three thousand openings.

Scott – There's a need. Some people are concerned that with AI and all of these things evolving that there will be a lot of jobs going away. That is true. There are a lot of jobs going away. But, the studies that I've seen so far indicates if you use history as the basis, there will be more jobs created than lost. The problem is do you have the skills for the new job? And I think what you're doing is addressing that.

Ann – Right.

Scott – Hopefully people recognize it. A lot of people are just saying "woe is me, my job is going away." They need to see the picture and realize that there's another new job over there if you're willing to pursue it.

Ann - I'm running into a problem in some places and with some faculty. It's not here; actually, we don't have this problem here. Some faculty are nearing the end of their career and don't want to do anything new. But, they don't have a choice. They have to do something new. I'm going to talk about a skills standard grant that we're going after. The CTC is now the only IT center nationally. We are putting in a proposal to redo the IT skills standards for all of IT. They were last done in 2003.

Scott Veibell – That's four generations old.

Ann Beheler – Yes, it's ridiculously old. I will talk to you about that in just a little bit.

GOAL 2

GOAL 2 – Increase completers
Increase number of degree/certificate completers ready to meet workforce needs.

Objective A - Develop and implement recruitment and retention strategies for underserved students.

- Second "Diversity Summit" cohort
- Dissemination of "Diversity Summit" best practices



GOAL 2 continued

GOAL 2 – Increase completers

Increase number of degree/certificate completers ready to meet workforce needs.

Objective B - Develop student portfolio methodology to determine effect on hiring period post completion.

- Gather research data
- Create webinars to teach process
- Implement portfolio project at select CCN/partner schools
- Track impact of student portfolio implementation



GOAL 2 continued

GOAL 2 – Increase completers

Increase number of degree/certificate completers ready to meet workforce needs.

Objective C - Increase number of students who complete certificates and degrees through innovative programs.

- Working Connections events
- University of North Texas' BAIT
- Stackable certificates



Goal 3 – Create Regional Hubs

Ann - Creating regional hubs is a big initiative of this new grant. There will be seven of them. One of them is the Bay Area out in San Francisco; they are not officially a sub-awardee partner under the grant, but the state of California is pushing very hard to move IT forward within the state. Richard Grotegut is someone I've worked with for years. He's out there marshaling the 28 colleges in the Bay Area to work with us. We have a Houston hub. There will be one here in Dallas, composed of UNT, the CTC and Collin, and then also El Centro. There will also be a hub in Michigan, in Ohio, in Georgia, and in Florida. We're launching the first one at Lone Star. We had the first meeting with the Houston folks last week to get the other colleges in the region involved, and we'll start building their regional hub BILT as of this fall. Colleges, as you probably know, have a long fall semester and a long spring semester. There are courses in the summer, but you don't have the full complement of people on campus. Summer is when everybody takes their vacation. So we're going to be building the BILT for Houston in the fall and starting on the other hubs. We don't want to start all seven of them at the same time. We will schedule them probably one or two a semester. I really want these regional hubs to basically be little mini-CTCs in their region, but with a regional focus.

Matt – How do you go through this process with the regional hubs to get an assessment of what their job needs are?

Ann – Lone Star is using Burning Glass and EMSI. Lone Star did a very good labor market analysis before that very first formational meeting with the leads at the colleges that were going to be involved. With Burning Glass and EMSI, they could tell you numbers down to the level of degrees and job titles and everything like that. Now I think that is nice as a backdrop, but ultimately, I want to hear from you folks on the BILT. I want to know what you see, because I trust you more than I trust just general data that has been compiled. So, it's all of that together: doing the regional analysis of what the jobs are and then getting the BILT to be active in the region.

Glenn – One of the things that Candy (Slocum) at Interlink has focused on is this. It's great to know what jobs exist today. But, for students who are freshman on a two or four-year degree, it's more important to know what jobs are going to be there in two to three years. Interlink reaches out to where the jobs are expecting to grow. On our recent survey, we asked over a thousand people in a similar number of companies about AI and Robotics and none of them had a need or want until like two to three years from now and they saw it kicking in. You might say "that's terrible results." But no, that's actually a good result because it takes two years to build the program.

Ann – Yes, it gives you some time. Burning Glass and EMSI software are getting pretty good about crawling the web and looking for trends. I think ultimately it comes down to having at least one future technology strategist on your team to keep your company in business. They know what they're going to have to hire to keep their company going.

Matt – Are business leaders looking at this themselves and judging?

Ann – They will for sure. In Houston, we just got the educators together to prepare them to get their business people. We're forming a whole new BILT as of the fall.

Glenn – Heads up for the folks in Houston, one of the things you might want to do is reach out to the University of Houston to the School of Future Studies. It's run by Andy Hines. He's either the leader or co-leader or some senior position. They teach both Bachelor's and a Master's degree courses in Future Studies. Their graduates are everywhere. What they will have is a list of where their graduates have probably gone. If you're looking for IT insights and futurists that are classically trained, they may be able to put you in touch with a few different people. Maybe if you wanted to run a project with a master's class, you could get with them and ask "Can we do something together on this for IT futures?"

Ann – Glenn, you asked what was different about our BILT, and I honestly think the future-focused attitude that all of you bring when we do this work is different from what some traditional advisory councils do. Some advisory councils are focused on the now and not the future. Focusing on the now and not the future in this business, which is becoming more and more automated, is not going to play well.

Matt – Do you have to have the now? It's already happening.

Ann Beheler – Now is already happening, but if the curriculum that is being taught now is already way off, then I think there's a crisis now as well as in the future.

Matt Glover – If we're not focused on the future, there's no real value. There's really no point of having the business weigh in on it.

Carolyn – You don't have time to do all your KSAs and get it done and offer it. They're already on to something else. In fact, I've been looking at what will probably be community colleges' and universities' competition in the future and that's private businesses that can turn it fast like that.

Ann – We're getting faster.

Carolyn - They're willing to pay for that, and they're putting expiration dates on their courses. Somebody's going to pay thousands of dollars to go take a course and it's going to be outmoded in two years. I think maybe that's something perhaps we need to look at, and, of course, that's probably the technology futurist position. How long will this course be good if you take it, and do we guarantee something past that?

Ann – We're probably not going to guarantee for \$50 a credit hour.

Carolyn – The half-life of an engineering degree is five years. If we start putting courses out there that have the life of a year and people spend their money on it, I think we're going to get some bad feedback.

Glenn – There is one thing that makes it easier for the regional hubs in forming their BILTs then it was when you formed one, Ann. Back in 2000, if you had done an honest survey where people would have really told you the truth, were the CTOs and CIO order takers or were they visionaries driving the business? Seventeen years ago they were order takers. Today, if you're not a visionary for the business, you won't be in your job very long.

Carolyn – Your business will go out of business.

Glenn – I think it's going to be easier to find people that are looking to the future to get on the regional BILTs. We have a lot of people who joined in 2000 who really were not in that mode, "I can tell you what I need today," but they really weren't thinking out past their next report.

Carolyn – This was the first time, I guess, in history that you have to work in a parallel universe. You have to work for this five year period and you have to be ready on a notice to turn on a dime. A lot of companies wait for the turn to happen and then tried to respond. You'll go out of business that way or be absorbed.

Ann – We need to move on. We're also going to grow the CCN with high schools and universities. The idea is that these faculty members are connected with one another. The first people they contact are their trusted colleagues at other institutions in the CCN rather than to going off reinventing wheels. It's a really good group to work. Their relationships are very, very important.

Glenn – Ann, I have a question on the high schools. Remember we talked at the last get-together that if students took CCNA 1, 2, 3 and 4 they still could only get 60 hours if they just took 12 hours of it in high school. Is it that you can't take more than 60 or you can't get credit for more than 60? That sounds like a nuance. But, if they took those four courses in high school and then they got to the colleges and hit their 60 limit, but want to take four more courses. Can they do that?

Ann Beheler – In some cases yes and in some cases no. It has to do with financial aid issues if they're using financial aid.

Glenn – That might be like a little stackable 12- or 18-semester-hour thing that you could do. Especially if we got the BAT in IT up and running where maybe they could transfer them or take them from there.

Ann – We could talk to Chelsea because she's at UNT now.

Chelsea – It would be nice if you could stack those. The program that I'm in specializes in networking and mathematics. It would have been handy if I had taken those courses in high school and been able to just stack them on top. But, those courses weren't offered to my high school. The closest I had to BCIS was when I learned to type and open office.

Ann – There are high schools that call Office courses IT.

Glenn – Those should be non-credit courses.

Chelsea – It was a non-credit, but you needed it for high school.

GOAL 3

GOAL 3 – Create regional hubs

The National Convergence Technology Center's
SEVEN REGIONAL HUBS

NATIONAL CONVERGENCE TECHNOLOGY CENTER

GOAL 3

GOAL 3 – Create regional hubs

Capitalizing on the success of the Business and Industry Leadership Team, Convergence College Network, and Working Connections models, invigorate and create new regional-hubs that adopt and adapt convergence programs to increase prepared faculty and employable IT graduates.

Objective A - Partners establish regional BILT's and disseminate new curriculum.

- Establish regional hubs
- Invigorate regional hub BILT's
- Work with regional hubs to apply for project grants

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GOAL 3 continued

Objective B - Establish a CCN model including high schools, community colleges and universities in regional hub areas.

- Recruit high schools and universities to join CCN via regional hubs
- Conduct regional hub webinars and training sessions
- Promote pathways and articulations

Objective C - Support faculty professional development events, modeled after Working Connections, in regions supported by partners.

- Working Connections-style events and webinars
- Longitudinal surveys to measure "true impact"

NATIONAL CONVERGENCE TECHNOLOGY CENTER

Goal 4 – Capacity Building and Dissemination

Ann - We're also doing capacity building and dissemination. Any time we do things with taxpayers' money we share it broadly. We're deepening how we share it, though. You still have to do what I call the "cover" conferences, where you just get the word out. Even at this point people say, "We didn't know you existed, this is so cool." It's interesting

after all this time talking about what we do and publicizing it – we’re not marketers. But there are still people that come to our conference sessions and a light bulb goes off. I’ve got a group in Omaha that wants to do a BILT, and they want me to come there and model it for them so that when they do it they do it right. We’re actually more hands-on with people than we ever have been. I went down to Houston to help them on what they’re doing, and again, more hands-on trying to really get things to happen.

Glenn – Have we developed guidelines and templates that you utilize with the BILT that could be transferred over?

Ann – We’re in the mist of doing the BILT toolkit. That’s why we have someone next door shooting interview videos.

Mark – These are the interview sign-in sheets. If you’re interested in answering questions next door, please sign your name right here.

Ann – It has to do with why the BILT matters.

Mark – The interview will take about ten minutes. We will share you answers with other schools to persuade them to implement the BILT model.

Ann – The BILT has become so popular that I did an impromptu webinar about two weeks ago with two days’ notice and had about 25 people register. It’s caught on big, but we have to scale it. It can’t be that we just hold everyone’s hand. In addition to what we’re distributing with the webinars we’re creating under the CCTA, we’re using webinars and web meetings in lots of things that we do.

GOAL 4

GOAL 4 – Capacity building and dissemination



Convergence College Network



GOAL 4

GOAL 4 – Capacity building and dissemination

Objective A - Grow the capacity of the CCN to better support 2+2+2 articulation.

- Deepen work of CCN to show increased completions and broaden training (e.g. BILT and Leadership Academy best practices)
- Add more universities and high schools to the CCN for 2+2+2

Objective B - Disseminate all Materials and processes through ATE Central and other means.

- National distribution center (ATE Central, webinars, SM, website)
- Create and publish articles and white papers



BILT Group Letters

Ann - I'm going to talk to you briefly about the two letters and the IT Skill Standards 2020 grant that's written.

The Skills Standards are old and we're gathering – according to a very solid process that was used before – 40 employers and 20 educators for each of the main IT skill clusters and essentially creating a BILT for each one of them. Those cluster BILTs will come up with the skill standards that will then be published. We're not going to publish them in a book this time; we're going to put them online. I do think we will provide some PDFs that people can download because we have to recognize that not everybody is comfortable with everything being online. The Skills Standards grant, we hope, will start by the fall of this year and over the next four years we will update IT skills for the top eight to ten critical job clusters. We met with a subset of this group on what they thought the starting set should be. The group that we met with about two weeks ago came up with the preliminary list of skill clusters:

- Software Development
- Cloud Administration, which includes Network Administration and Systems Administration
- Cybersecurity (working from NIST and CAECD standards)
- Data Analytics and Business Intelligence
- Technical Support and Operations including DevOps
- Database Development and Administration
- Technical Project Management

The list needs to be national, so we're going to verify it nationally with a group of business people from the entire nation – small, medium, large; geographically separated east coast, west coast, north, south. From there, we will do the job standards for each skills cluster.

The Skill Standards support letter we're asking you to sign will be the similar to the letter the BILT signed for the National Center. It states that collectively you commit to helping us find IT employers on a national level to help, participating in meetings, finalizing the job clusters, engaging in the work, evaluating job clusters, and helping disseminate the results.

We're going to pilot a "work group" approach to keep the job clusters current. The idea is to have three to five employers and three to five educators work on the cluster as a team for two years at a time, and then cycle off. We're going to start piloting that to try and keep the standards current. I will talk to you more about this over lunch.

Mark – Some of the CCN schools have mentioned facing internal barriers with the BILT model. We thought it would help them if our National BILT signed a letter of support explaining why you think it's so valuable and why it works. This letter can maybe help them get more support at their home school to persuade the administration to do the BILT model. The regional hubs can use the letter as well as they bring in new high schools and universities that don't know the CCN very well. I think it would be helpful. At one least school very much liked the idea of us providing a BILT support letter.

Ann – For me, not having the BILT co-lead the work is just wrong. But, it's very new and very different for many colleges to even consider having their employers be more than just advisors. I don't get it, but evidently they're having trouble in some colleges getting approval to do it in this manner. On the other hand, I spent some time last week at a small college in Pennsylvania. They're taking all of their applied programs and implementing a BILT for everything. Once people get it, they really get it, and it's making a big difference. It can just take a while for them to understand.

Amy – Did they give you any reason why they can get much traction going?

Ann – Because faculty is supposed to be in control of the curriculum.

Scott – I think if you're running a college, the BILT could be expensive because now you're going to have to evolve more quickly than you want to. You might be fearful wondering can I afford to keep up? And then, on the same token, you give up control. If you're evolving that quickly, you've got to be a little bit hands-off and trust people.

Kurtis – There could be risk there too; you could be getting it wrong.

Amy – Is it a perceived lack of control?

Ann – The question is, is it a perceived lack of control? Yes, it really is, because you can tell us to do things that if we can't do them, we have to come back and say we can't do them.

Scott – I'm just trying to theorize why someone would be hesitant.

Ann – That's exactly why they're hesitant. There is a perceived lack of control.

Amy – People who aren't educators are telling them how to educate.

Ann – Yes, but you're not really telling them that. You're telling them "I want your graduates to know this."

Chelsea – I would think they would welcome that.

Carolyn – They're still operating in a traditional approach of education.

Ann – Probably.

Carolyn – We just disrupted retail all over the place. I feel that the next big area of disruption will be education. If they don't want it now, in about two years they're going to have to have one. K-12 education is going to be competing with private companies. People are going to start asking questions like "why do I even have to go to school daily if I'm in the third grade?" You can't even envision a lot of the chaos that's getting ready to happen. I think the BILT is part of the answer to reduce chaos in the field of education.

Ann – It's a little more chaotic because we have to move fast. But, if we don't move fast, we're not going to produce people that have the content knowledge, much less the employability skills you want.

Carolyn – This is one of the survival needs of applied science. Teaching English Literature is a different thing. When you're doing applied work, that curriculum has a cancellation date.

Scott – A theory of mine is that there's a disruption coming. We'll see if I'm right. I think part of that disruption could be that the community colleges are going to disrupt the universities. We were talking money earlier. There's a huge thing going on with the millennials staying at home because they can't afford things. All of this student debt, I think, is getting ready to explode. One of the disruptions might be that the universities lose enrollment and community colleges pick it up.

Chelsea – That's a big deal for me. I'm still in college and I have no student debt, but I pay for college out of pocket. The university is a ridiculous amount of money versus Collin College.

Carolyn – Your cause is to do great things. You need to have some kind of leadership connection to talk about marketing in the future.

Ann – Yes we do.

Carolyn – Do you do that now?

Ann – We try to get you most of the time.

Carolyn – What I'm thinking about is we could get some of these people or go to their institutions and really tell them. I don't think they know. I don't think they have a clue. And then when they do know, it's like the Luddite revolution when the sewing machine came out they all refused to work and then they lost their jobs. It's almost that people start hesitating and you are going to have the teachers shifting that will try to stop the movement. There's going to be tremendous chaos. Do you think we need to introduce some of this?

Ann – Yes, we do.

Carolyn – I don't think people are aware, or they're being fed wrong information.

Ann – If you would be willing to help.

Ivor – At the same time, universities outsource the education because they need to create all these teachers to fill these positions. You're talking about a process that's more than just web post.

Carolyn – In my formula for futurism, you add ten years to California and you get Texas. I was out there in California about 20 years ago working with the legislature and I told them that they were going to have some problems with their MediCal program. They weren't going to be able to afford education. Aren't they in difficulty right now economically?

Ann – Yes.

Carolyn – If we start having economic difficulties, we're going to be asked, perhaps, to operate on half the expense that we spend per child. That's going to be a request that people are going to fall over about. We're going to have so many people dependent on Medicaid (Medical in California) that we're going to siphon all the money out of education. You can only tax people so much. We're going to have a big mess. I just wonder if we need to prepare. We're in a good position to help people.

Ann – We do need to prepare and the vehicle we're using for getting word out and getting things done more cheaply, if you will, is webinars for the most part. I will be calling you and maybe some of you.

Carolyn – They may not believe us, and the union will jump on us.

Chat box question – How hard is it to convert an advisory group into a BILT?

Ann – A BILT can be an advisory committee. It's just that you put the BILT people in a position of co-leadership for your work. We are required to have advisory committee meetings; that's what they call them. I don't care if you call it "advisory." It's just how much do you pay attention to the advice you get. In my case, it depends on who it came from. What you do in a BILT is that you say "we're going to listen to you and we're going to address everything you tell us to do." "Addressing it" may mean "yes we can do this and we're going to put it in our curriculum and this is how we're going to put it in our curriculum." But, maybe item number two that the BILT asks you to do requires half a million dollars of equipment. If so, then you go back to the BILT and say "we don't have that kind of money and we don't know where we're going to get that kind of money." The BILT can work with you. Sometimes we have gotten donations of equipment. Or, maybe you need a teacher to help your faculty be more up to date. I know Dell has provided instructors; NetApp has provided instructors. It's taking the relationship with the business advisory council members more seriously. Instead of just saying "hey that's nice advice," we actually give the BILT feedback on everything they want us to do and it closes the loop. Some states require schools to have advisory councils and

that's fine, call it an "advisory council." I would urge you to really seriously address everything the group wants to do.

KSA Discussions and Voting

See the red-line KSA worksheet.

Skill Standard Grant Proposal

Ann – What you have is two-page overview of what we're proposing to do as a part of the IT Skill Standards project. The last project had probably ten different skill clusters together developed using employers nationwide. We intend to do the same thing. We're going to use some virtual meetings and limit the number of face-to-face meetings, because the travel is astronomically expensive. We do think it's necessary to have the meetings on the East Coast, middle of the country, and West Coast though because some of these people are not going to agree to spend all day traveling to a meeting for a day and then travel back. We're going to separate it out, and we have leaders that can help with it in different regions.

The pilot work for the job clusters is in the middle of this sheet. This is what the subset of the BILT came up with as proposed job clusters. Again, we're going to have a group nationwide of at least 150 different employers (our BILT) that will review these job clusters. Ultimately, for each cluster BILT there will be 40 employers involved. We're focusing on networking and some system administration, but we're not focusing heavily on software development. We're not focusing heavily on data analytics and business intelligence. We're not focusing heavily on web development, tech support, DevOps, database, or technical project management. We have eight things listed here. Network administration and system administration are two separate ones, put together for the cloud. You can argue about the delineation of the job clusters, and we will argue about that as we get into it, but we want to at least get an idea of how many clusters we are considering. If we don't have a list of clusters, it's hard to decide the number of meetings you're going to put together. Do you like the list or do you hate the list? Is it close or is it off? Again, this is a draft list it's not a final list. We have a whole process of involving at least 150 employers to get to the final list.

Scott – Software development is awfully broad.

Ann – It is broad.

Scott – I mean more broad than most of the other items on the list. Is that coding?

Ann – It's coding, that's part of it.

Chelsea – That would also be part of web development, too.

Ann – What we're looking at is doing a very detailed process of identifying the critical work functions and task and the KSAs, as well as the certifications needed at the time of publishing. We know that that can change. It's going to be published on the web. We're not publishing printed material at all. We're asking = the business people, including you (hopefully, you're going to be involved) to help us stratify the critical functions and KSAs for the top three or four job descriptions. Coder would be one of them. An analyst might be one of them. I don't know what all the topics are.

Scott – I don't think that the software developer is an IT skill. Most of the IT people are doing scripting and other things. They're not like an application developer.

Ann – The rest of the world considers programming as IT.

Scott – I’m the odd person.

Ann Beheler – The “proverbial world” considers programming, system administration, networking, cybersecurity, all of these things as part of IT. One of the issues we’re running into is that we are focused on networking and system administration. That’s what the CTC has been doing the whole time. And with that, we’re not addressing seven of these areas that are here. Now that we’re the only IT center nationally, we’re being expected to do all IT. The choice was to go after some additional money from NSF so that the Center could directly address all of these areas or update these skill standards. Is it a decent enough starting point, and are you okay saying that you commit to being involved one or the other?

The last commitment letter you signed said on behalf of the BILT, we collectively agree to collaborate in the following ways. The whole group agreed to collaborate, but it’s not committing any one person to doing every single thing. Does that make sense?

Scott – It’s a good list. I’m glad to see number four on there.

Ann – I’m spending the rest of this week in Washington, D.C. There is a data science summit to hopefully identify what can reasonably be sought as a two-year program in data science.

Scott – That’s going to be the biggest thing in the future. Data science is going to be huge.

Ann – I know. What I’m seeing is that two years ago all of the business intelligence people needed to have a master’s or a PhD. That’s changing because there’s a realization that they need people that can clean the data and people that can do the support tasks. I will let you know if we learn anything. They have NSF money. I’m hoping we’re not actually doing their work because I want to learn something.

Scott – At Cisco, I don’t know if they’re not hiring data scientists, but we’re growing them. We’re taking people that are already at the company that have an affinity and are willing to take courses. Then, we’re paying for those classes. So we’re growing our own.

Glenn – That’s one of the trends that I’ve been tracking on education, not only for students that are just going through the education process, but also for people needing to retrain in their current role. Nobody would have ever said you were a data analytics expert, but most product managers need data analytics now. They need it for managing their product lines, and they have people below them that are doing the data mining. Product management used to be a lot about, “My gut tells me” and “I think this.” Now they want the data analytics.

Ann – You have to have the data.

Glenn – If you don’t have it, you really need to go back to school and takes some courses. A community college would be a great place to get that.

BILT Toolkit Interviews

Ann – We would appreciate you doing the video interview if you haven’t. We want you to tell us what you think of the BILT process. We are working with a group called CORD in Waco (the Center for Occupational Research and Development). CORD does a lot of analytical work and puts out toolkits, guidebooks and worksheets for colleges to use. They’re working on business engagement and I told them we are, too. CORD has had me come to their conferences for the last couple of summers. That’s where this college in Pennsylvania came from that ended up wanting to create BILTS for all of their A.S. degrees. Since they’re working on it and we’re working on it, we now collaborating on a toolkit. We are going to edit your videos together and hopefully help people nationwide so that we will not have to talk to everyone individually.

Provost Introduction

Ann introduces Don Weasenforth, Collin College's new Vice President/Provost for the Preston Ridge (Frisco, Texas) campus. The BILT members introduce themselves to him.

Skill Standard Grant Proposal – review for those BILT members out of the room giving interviews

Ann – We are going to be more granular with the skill standards revision than the level that we're doing here today with the KSAs. When we started out with the National Skills Standards, originally there were 450 items on the list in 2003. It took two days to go through it. Over time, this group has decided to collapse that list and put more things per line and vote on them as a group. In the skills standards revision, we're going to have to go back to being more granular because we will have the critical work functions for the job clusters. We will have the KSAs and the certifications that are valid or needed as of the time of publish date because you know that's going to change. Then, we're going to ask a combination of the employers and the educators to split it so that under each job cluster we know what topic would be most appropriate to be taught in a two-year applied degree and what in a four-year applied degree. We're not the first to do a four-year applied degree. Washington State and Florida have them everywhere.

Scott – What is it you need from me?

Ann – I need you to sign the letter that says you will do as a corporate BILT – all of you together – will support the items lists.

The CCN letter is a general letter that will go to other colleges that are having problems with their administration or their faculty agreeing to implement a BILT. The letter will hopefully help explain why the BILT process works. We're also going to use a lot of today's interview videos to put together another value proposition.

Glenn – And for a little sales pitch for myself here, I brought when we had a different group of folks here was to use a "Wikipedia approach" so that it wouldn't become out of date six months after we put it out there. Just like Wikipedia does it, you put it all out there and anybody can say on this cluster you need to have this or delete this. We curate it and keep it up to date. That's got a little expense, but if you look at Wikipedia, you're not charged to use Wikipedia. They ask for donations once in a while, but I think we can make that model work. We could build a business model around Wikipedia.

Ann – Tomorrow I'm meeting with two program officers with NSF to make sure I have it all in order, that it's going to go through okay, and that I haven't violated anything. This is a unique grant. There's nothing wrong with what we're writing, but putting it in at this time period is different from what we normally do. We normally submit all the grants in the fall, but they had more money this year than they thought they were going to have because Congress did not cut their budget.

Glenn – This Wikipedia approach is something that could be used across every program in a college. It doesn't have to be just for IT clusters. If you're in health care and need to update a cluster or skills set, put it on a Wikipedia type platform and let the industry and other faculty around the world lounging around on a Friday night update the Wikipedia. Software programmers rate software programs on their days off for free. The National Science Foundation could model off what we would do to be used by other colleges and have a template for it.

Ann – What I was advised, Glenn, was to put in the concept of "piloting" and get some data on it. Also, simultaneously, we can go for a consortium of industry people that would agree to fund some of the ongoing updates. Because you're right, just like we're showing today, whatever you decided a year ago now needs to be changed. That's what's going to happen with the skills standards and we know that. Is NSF going to want to drop millions of dollars into it every three or four years? No, but they need to drop a few dollars into it to keep it going, and not wait until 15 years to update it.

Glenn – I'll raise my hand to help with the business model and reaching out to industry. If we show a value proposition that they can use it for their HR departments for hiring and if we have our clusters well-done and kept up to date like Wikipedia, it's cheap. Get some servers and some part time server administrators. It wouldn't have to be millions of dollars from companies.

Scott – Another thing is if we could get them to donate the hardware in the form of dollars and just do it as operational, then you could have the operational spend and just expand five years or ten years.

Glenn – We could have a company that does cloud and offer to put it in their cloud at no cost.

Ann – That's what I want you to help with. The way I look at grants, if you start to write one and it's really tough to write and doesn't hang together or make sense, then the red flags go up. But in this case, this grant has been put together over six weeks in what we would normally spend six months trying to work out. It's just gone together really, really smoothly. Anyone I talk too says, "Oh yeah, we needed that for many years. How come it hasn't been there?" Somebody's got to lead it.

Matt – And as a national center, it makes sense.

Ann – Exactly. The last time we put in a letter that had multiple signatures on it, they loved it. They absolutely loved it. What they typically get is the form letter that looks the same ten times and ten different people sign it, but that just doesn't carry the weight as all of you signing the same letter.

Resume KSA Discussions and Voting

See the red-line KSA worksheet.

K15 – Soft Skills

Christina – Here's a suggestion. We talked about at the NVC meeting about having business people record employer videos to say, "Here's what I do." Your professor can tell you all day long, "You need this skill, you need that skill." But, having someone who could potentially hire me tell me "you need X, Y and Z" then the student will take it more seriously than if my professor said it. We need you on the employer videos saying, "These are the soft skills that you need."

Glenn – I like that idea. It doesn't have to be put in as curriculum, it could be put in as homework: go watch these videos, write a couple of bullets down, what you're going to cover. It could be the first five minutes of class. It could be incorporated into the portfolio project because these are the skills you want them to be demonstrate or talk about in their portfolio.

**Next BILT Meeting: Tuesday, Aug. 14, 2018
8:30am – 10:00am Central**