National BILT Meeting Minutes
"Mega-BILT" Trends Discussion

MEETING DATE: **Tuesday, January 21, 2025**	MEETING TIME: 10:30am-11:30am Eastern	MEETING PLACE: Zoom
RECORDER: Mark Dempsey	RECORDING: Available upon request	PREVIOUS MEETING: Data Analytics KSA vote meeting – November 19, 2024

MEMBERS PRESENT

BILT:		
Stacy Brandenberg, Hye Tech Network and Security Solutions	Jack Levis, SpartanNash Company	Lee Rosenfeld, McGraw Hill
Carolyn Corbin, Center for the 21st Century	Priti Malkan	Skillspire
Brian Cunningham, Strategies	Scott Andersen, CT&I	Ravi Tandon
Achille Ettorre, Ettorre and Assoc.	Robert Packer, Converged Technology Group	Dan Tuuri, TrueNorth Companies
Robert Hitchins, MV Transportation	Ginny Proctor, ODJFS	
Corey Kirkendoll, 5K Technical Services	Mark Richter, Hitachi Digital Services	
NITIC staff: Ann Beheler, Mark Dempsey, Christina Titus, Larry McWherter, Alie Hernandez, Diane Meza, Deb Hecht, Rajiv Malkan, Kyle Jones, Natalie Greenwell		

Agenda items	Discussion
NITIC and BILT overview	Larry provided an overview of the NITIC grant, then explained that today's meeting aims to discuss the current state and future trends of the IT industry. What should students be discussing in class this semester? Larry told the BILT members that their anonymized feedback is widely disseminated to educators nationwide. He also noted that educators on the Zoom call are invited to listen actively; educators can post questions in the chatbox. Mark told the BILT members that their feedback leads to direct action by NITIC. Over the last six months, BILT members have stressed the importance of – * Container skills, which led NITIC to host a 40-minute webinar in November (22 educators attended) and a three-day Working Connections track in December (18 attended) * "Soft skills," which led NITIC to plan a non-technical track at Summer Working Connections in July 2025 focused just on helping faculty improve those skills in students * AI, which led NITIC to continue to offer AI training – two Winter Working Connections tracks in December attracted 43 educators Ann next provided an overview of the BILT (Business and Industry Leadership Teams). BILTs are business advisory councils that put employers in a co-leadership role. NITIC BILT members are providing feedback to colleges across the country. The BILT is driven by a structured and repeatable process that efficiently uses employer time. Typically, employers are only asked to spend four hours a year in web meetings. All of the employer feedback, as Larry mentioned, is shared. BILTs have two goals – aligning curriculum to workforce needs and building and deepening the relationship between educators and employers. There are two kinds of BILT meetings: shorter cross-discipline "trends" meetings like today and longer single-discipline meetings where job skills are prioritized via vote and discussion.

Trends Discussion	Ann posed an open-ended discussion question to the BILT group: "What keeps you up at night when you plan for the future?" One employer remarked on the impact of AI on cybersecurity. Between quantum computing and "post-quantum" security and Google's new powerful chip, technology is advancing faster and faster. He used to say that IT changed every year. Now it changes every quarter. The rate of change with AI and cybersecurity concerns him. Google's Willow chip: https://www.cnbc.com/2024/12/22/what-google-quantum-chip-breakthrough-means-for-bitcoins-future.html Another employer said he's concerned by the transition from generative AI to agentic AI. Generative AI creates content, but agentic AI acts on that content. What are we going to want AI to do? He's involved in many autonomous vehicles, which is a function that puts lives at risk if done incorrectly. He wants to ensure that before these kinds of changes are made, they're done smartly and incrementally to protect the public. Agentic AI: https://hbr.org/2024/12/what-is-agentic-ai-and-how-will-it-change-work Another employer brought up privacy, which has become a "massive" issue. Things we trusted in good faith 20 years ago would be disastrous to trust now. If we clicked on everything we received, we'd all be bankrupt. Security has long been an ongoing concern, but it's at a "fever pitch" now. One employer noted that every C-suite wants to do something in AI. It's a huge buzz term. However, people do not realize that AI is only as good as the data with which it has to learn. So, how do you project your organization's IP when training the AI models to perform tasks? This is especially true with agentic AI, where the AI can make a decision and take action. You want to protect your organization's IP, but you need the AI to see that IP to enhance the organization and perform tasks. How do you find the right balance? How do we protect the IP data while still getting the AI output that we need? Another employer agreed. It's easy to find and use AI tools, but you must know how to use them safely. Students need to know this. When they enter the workforce, they'll be asked to perform routine jobs and automate processes. Will they know how to use the AI tool safeguards? Linked to a previous mention of IP, another employer talked about the concept of AI "data segregation." Where on the network will you let that IP data go once it becomes part of the AI model? How do you segregate that data safely and securely? Chatbox comment: Re: AI, not losing sight of the larger ability to interpret and evaluate. Will tomorrow's workforce remain curious and validate, or simply accept output? We can't just concentrate on teaching raw tech. General regulatory shifts in absence of Federal Policy states are setting up their own around things like AI, Privacy, etc. With our "World is Flat," it's basically determining the most stringent states and applying that as standard (ie: CA, CO, NY, IL). Intune and Purview are nearly daily conversations with clients I work with. Having a good understanding of integration of Microsoft 365 stack is not optional, or extra, but mandatory. One employer talked about his role in applications. He works for a managed services company. In that space, he needs two things out of an app – the app needs to stay up and running and it needs to be secure. "Staying up" means there's solid infrastructure behind it,

good code, and good testing. "Being secure" means we understand possible problem areas and have the skill to write code to handle it. These are his big concerns: reliability and security.

Another employer talked about data. It's his responsibility to manage data as it "moved around the world." The newer generation of IT developers don't know how IT works. He has to do a lot of internal training. Something as simple as understanding how long it takes to transfer a gigabyte of data from point A to point B, they don't know. He's not sure the basics are being covered in schools. There is a huge stack of technology under AI. Do technicians know what to do if something goes wrong? His vendor had to write code to assemble log files because the developers didn't know where to look to find what they needed. Even with all the technological changes, the fundamentals - like binary code and Kirchhoff's circuit laws - have not changed. As people retire, his company is losing skills. This lack of knowledge impacts him daily.

Chatbox comment (educator): We offer an Intro to Computers course that includes apps, internet, network, computer hardware, and computer software.

Chatbox comment: Some disciplines, like Engineering, Architecture, etc., have moved to 5-year degrees to ensure that the fundamentals are well covered...A full Computer Science degree may benefit from that type of schedule. Also, IT concepts such as IT Architecture and Security could be better covered for graduates.

One employer has been working with a college to help develop a degree program. It's hard to cover everything in two years. You can be certified to do something, but that doesn't mean you have the necessary fundamentals. Every team needs someone who knows fundamentals. He proposed a program where the first year is spent understanding how computers work, then moving on to "orthogonal IT concepts," which would be the infrastructure and security needed to make an app work. He noted that IT architects have grown into those roles over many decades. It's hard to replicate that in a school setting. Organizations have inputs from 20-30 places that must be corralled into a coherent architecture. Many companies fail at this.

Chatbox comment: Seeing programs drop A+ as an example is tough. The A+ itself doesn't always create direct career entry, but does a nice job of summarizing much of the content Lee just mentioned. If we don't know the hardware we can't expand into understanding deeper content.

Ann agreed: even if the A+ certification is no longer valuable, the knowledge behind it is.

Chatbox comment: While we have to teach specific skills, the awareness of how their specialization relates to other disciplines may be missing.

When Ann asked about IoT sensors, one employer replied that he worked for a transportation company. Thousands of sensors were placed over the train tracks to measure data. Collecting those millions of data points was critical – about two terabytes of data were collected a week. It's not easy to handle that much data and understand what it's telling, but this is not the sort of thing an entry-level person would do.

Another employer wondered if a reliance on AI may be removing "the human touch." Where do people fit into all of this? He asked if students believe or assume AI is taking over. Do students think the AI will take care of what they perceive as grunt work? Maybe some skills we assume everyone needs soon won't be needed. Where will IT jobs be in fine years?

<u>Chatbox comment (educator)</u>: I teach a few AI courses at our college. Students are very concerned about AI, especially in terms of the impact on programming jobs (e.g., Zuckerberg's recent comments). They're excited to use it as a tool, but they are also worried about job opportunities in the near future.

<u>Chatbox comment</u>: From my perspective, the job is changing in that the broad range and fast pace of change almost requires that developers have access to tools to help them transition from language to language, or absorbing new features within language framework releases.

<u>Chatbox comment</u>: Sam Altman says one of his goals is to have robotics mimic human physical capabilities as well as have AGI [artificial general intelligence], so in that respect, AI may not 'take over,' but it is very likely to displace workforce

One employer noted that it all goes back to how well the tool is trained. One will perform better if it's a choice between 500 IF/THEN statements or a switch case. But there's no way to know how well a tool will perform without looking through the code. And if you have to go in "clean it up," he doesn't think AI is ready for that task.

From a software perspective, one employer is increasingly using AI to solve problems and challenges. He agreed with the previous discussion regarding the challenge of securely putting IP into the large language model. How can you use IP with AI and be confident it won't be shared outside of the company?

<u>Chatbox comment</u>: Another aspect is how you know how much a student has learned/retained if they use AI to create graded content for them.

The same employer from earlier again brought up the importance of "the human touch." He noted that you can tell whether a human or a chatbot wrote something, but many companies employ chatbots as their first customer service support line. Customers often realize this and get frustrated. We are not ready to let go of the human touch. Students need to know this.

Another employer urged schools to teach the skills first and then teach how the skills relate to other disciplines. Applications rely on infrastructure, which is built on many pieces. Both the application developers and the infrastructure managers need to know each other's needs and how all of that connects to serve business goals. A successful company needs many skill sets working together.

An employer discussed the value of "thought leadership" in students and developing strategic thinking. How are ideas managed? It's technical skills and also business skills like problem-solving. How can AI create value (like automating an eight-hour job into a 30-minute process) and help the business?

One employer noted the value of project-based classes. Get students to work together, learn what worked and what didn't work, then present the results. There are so many isolated silos in curriculum. What if there was one big overarching project that students worked on for two years? What if they had to contribute to that project in every class and slowly build it together? They'd touch on all of the fundamentals and disciplines along the way and see something work at the end.

An employer next talked at length about his experience with project-based learning overseas. They invited mentors from the community, the college, and local businesses to speak about

	what they did. Then, the students created projects based on the challenges those mentors faced daily. This process allowed the students to "teach themselves" to code and test. Interestingly, the younger students who grew up with technology performed better than the older ones. The biggest challenge in this process was making the educators stand back and work as facilitators rather than trying to tell everyone what to do. It was a "cultural transformation" in the classroom because the teachers didn't have all the answers. These were problems and disciplines unfamiliar to them. Instead, the students regularly worked with the mentors to solve the business problem. Students who lacked direction, discipline, or engagement – some truants or homeless – ultimately became very successful. Solving real-world problems, rather than traditional classroom assignments, opened up their thinking. He suggests that this mentored project-based approach that challenges the students is worth considering.

Another employer suggested there's a need to restructure how professors teach. His son graduated from college recently and got a zero on a programming assignment because he collaborated with another student. He found that ridiculous. In the business world, collaboration is encouraged, not punished. If you have a problem, you should seek out help from others.

Chatbox comment: Would having the different curricula working together help? The app developers would send requests to have the infrastructure built out and the infrastructure students would use their skills to create the environment for the programmer/developer to deploy into?

As Ann was wrapping up the discussion and thanking the employers, Mark asked for quick feedback on R programming in the chat box.

Chatbox comment: The question, perhaps, is whether that level of data science is in demand or is a stepping stone to using commercial tools that go beyond that level

Chatbox comment: I see Python is much more adopted by industries, not R as much for high expert level |
| Conclusion | Larry announced a unique "BILT Educator Program" that will teach faculty and administrators how to implement a BILT in their program. The program will span several months and include webinars, mentoring, and an in-person workshop. The kickoff information session is on Wednesday, February 5.

The next two BILT meetings are set for Tuesday, March 4 – a job skills prioritization and discussion meeting on entry-level AI job skills – and then Tuesday, April 29 – another discussion of cross-disciplinary IT workforce trends.

NITIC offered to let any BILT members stay on the call past the official adjournment time if they had more to say. |

Next Meeting: Tuesday, March 4 (10:30am-12:30pm Central/11:30am-1:30pm Eastern) – job skills vote and discussion on AI

Post-adjournment	An educator explained that in her state, universities are removing the requirement of a class called CIS 105, which covers the fundamentals of IT. The thinking is that young people already know all of that, but that doesn't seem to be accurate based on feedback they're getting from employers. The community colleges are fighting this change. Watching videos on YouTube

| | isn't the same as taking a class – incoming students don't know binary, or megabytes and gigabytes. She's seeking help from employers in making the case to keep CIS 105.

An employer sees a similarity in the mistaken notion that young people know how to type and use a mouse. He agreed that many concepts aren't there with entry-level workers. He wondered if the curriculum has several places to include and teach some basic skills. The educator agreed with him that students don't know how to type. She thinks it's a real barrier, but since none of their friends can type either, they don't see it as a problem. She noted that most of them are gamers and texters. They type with one finger.

Another educator agreed that employers see these essential skill deficiencies, especially with poor typing skills. She explained that K-12 has been phasing typing out, thinking students didn't need it. She'd like to include K-12 more in their BILT activities.

Christina suggested asking employers to formally voice their concerns to the school administration. Their voice may carry more weight than faculty. As for K-12, Christina noted that public school faculty have full schedules five days a week and aren't often available for BILT meetings during the school year. It's not easy to get them involved in the summer months, either. However, trying to get K-12 engaged with BILTs is a good goal.

Another educator noted that they invite school district administrators to their community college events, especially BILT meetings. She also tries to get involved in advisory committees for some local magnet high schools. Then, when she's at their meeting, she asks the K-12 administrators and faculty to attend her community college meetings. These are some ways to bridge the gap between K-12 and community colleges. |