Securing the Supply Chain Forum:

The Digital Transformation of Supply Chain

Global Trade & Supply Chain Management Forum Summary

Thursday April 26, 2018 – Highline College, De Monies, WA

Sponsors: Centers of Excellence for Agriculture-Natural Resources, Global Trade/Supply Chain Management and Homeland Security-Emergency Management

The Forum welcomed over sixty (60) participants to this year's annual Securing the Supply Chain Forum. Our 2018 Forum's purpose was to share information and learn from experts in the technology field how the supply chain is being transformed by emerging technologies.

Despite new tech advances, forthcoming changes to supply chain execution will revolve not around the technology itself but rather the convergence of the multiple systems and the teams that enable it. Companies are looking at new ways of maximizing their investments and optimizing the resources already on hand. There is an emphasis on breaking down the barriers that isolate the departmental silos by creation of one converged supply chain across procurement, manufacturing, warehousing, transportation and support.

New technologies are continuously developing to meet consumer demands. The online consumer is spurring new practices in shipping, with the models changing from right product/right place/right time to any product/any place/any time. As consumer demands evolve, so will the criteria and technology used to satisfy those demands. Solution providers must be able to deliver enhanced and agile functions that allow companies to take advantage of new business opportunities at a much faster pace.

DISRUPTIVE TECHNOLOGIES - Bryn Heimbeck, CEO and Co-Founder of Trade Tech Inc.

Bryn who has over 30 years of experience in creating logistics software set the scene for these transformations. He discussed the emerging technologies that will have an effect on industry and workforce development and served as the moderator for the first panel on Disruptive Technologies with Laura Hill, attorney at Perkins Coie who practices product liability law, Jagan Nemani, Madrona Venture Labs who spoke about Block Chain and Chuck Benson, Assistant Director of IT Facilities Services at University of Washington.

Bryn said to choose technology in Transportation based on 2 items: 1) what is available and 2) what will apply to your organization. The state of the market is a driving force when lack of sales and pricing

leads to frustration. Bryn stressed "a business must make a commitment on choosing the right technology on what will deliver. Each industry has specific needs, but must involve sales in this choice."

He also stressed Block Chain technology could be the next application for global transportation.   He felt that the current system of re-entry of the same data for every handler was a large waste. He explained that Block Chain is linking the many computers and business into a single cloud storage. Therefore, the re-entry of data became more of an assembly line process. The system would have a fire wall with the outside server. The benefit was supplier and sales could use the same currency.   Getting the business practice in place to encode the new technology will help set up the manufacturing chain.

Three types of currency used in global transportation: 1) document currency which is driven by the exchange rate for document and line item; 2) local currency for tax; and 3) exchange rate can be used by the lead company, possibly a global corporation, on the day for overall billing. He said the stage for the first panel discussion.

Panel #1: Disruptive Technologies –Discuss the emerging technologies that will have an effect on industry and workforce development.

Moderator: Bryn Heimbeck

Panel Guests: Laura Hill, Attorney at Perkins Coie, Jagan Nemani, Global Strategy & Innovation Executive, and Chuck Benson, Assistant Director for IT Facilities Services at University of Washington.

Laura Hill is an attorney with Perkins Coie LLP in Seattle. Her practice focuses on product liability law, unmanned and autonomous technologies, and aerospace. Autonomous vehicle by definition performs a task or function without human intervention, i.e. lane-keeping assist. It is not new in the automotive sector but what is new is the unmanned aspect. Its use helps in efficiency, cost of fuel and operational safety. The problem is the risk when used: 1) barrier to entry when put in place; 2) unknown benefits; 3) no track record on safety; and 4) public perception.

Product liability is a large part of current AI application. The use of new technology will cause further increase in the need greater liability coverage with its ability to identify and track detail. One of the major questions is when a system and humans are both involved in the process, who bears the blame on a failure. Manufactures bear the cost if its strait system based technology.

Jagan Nemani is a Global Strategy and Innovative Executive. Jagan indicated supply chain transportation would benefit in five (5) areas: 1) action from data using advanced analytics, 2) robots taking over 1 in 10 jobs especially in repetitive processes, 3) Artificial Intelligence (AI) or assisted data taking action on automatic movement, 4) Internet of Things (IOT) controlling process all way through chain, and 5) Block Chain for security. AI strength is the ability to learn from data, i.e. change the supply chain order and supply process to fit a need shown by analytic data. But this is only as good as data entered and questions asked to process the data. Analytical field is vast, with the computer learning as it develops and accepts more data.

Chuck Benson is Assistant Director for IT at U of WA. Chuck stressed IOT is now. IOT is all over the world and expanding exponentially. The use of IOT is variable by what is inside the devise: parts come from various global manufactures, unknown effects when data is added in a current system, multiple

organizations use the same device, and they tend to be out of sight –out of mind embedded in a device. Therefore, they can be a security risk.

Chuck stressed IOT implementation of IOT must be considered carefully by the organization. Risk. Bad investment. Facility management vs IOT. Good place to start is automation of a repetitive task. Checking if the retirement of current employees will leave a gap that future work force will not want to fill. Liability risk if move the technology in too fast. Public and labor force alienation, against a lowering of cost with reduced labor force. How do you choose a future path? Analytical data. Did the system actually do what we thought it was designed for? Can it be used and integrated in the current government regulatory network, i.e. drones' vs government

"ARTIFICIAL INTELLIGENE" Terry Dell - Managing Partner for Autonomous products for The Movement Company.

Terry has over 25 years of experience in wireless and mobility, with the past ten years focused on solutions design. Terry is the Managing Partner of Autonomous products for The Movement Company, a stealth research and development startup. His areas of focus have included public safety, Agriculture Technology, vehicle telematics and autonomous drive and IOT.

Terry stated we need 4 steps to develop AI: 1) digitization of the whole process (i.e. not read handwriting efficiently), 2) compliance monitor the cloud, 3) IOT complex not linking many applications, and 4) Block Chain. AI has to link complex steps which we ae still developing. He sees AI will be applied to agriculture commodity chain to reduce spoiling, improve shelf life, traceability, and increase yields for growth and profit.

Terry told the group to check out Amazon "Bee Hive" model for autonomous product delivery, warehouse robotics, and multimodal delivery system. Boeing analytics of 10 terabyte data collected every 30 minutes a plane flies. These applications are using fleet learning of normal to allow the system to spot the abnormality.

"Robotics and automation won't eliminate all jobs, however, the type of work we will do will change," stated Terry. "Creation of a highly skilled and specialized job force, reduced physical labor, safety and a reduction of "tribal knowledge" is in the future." He identified talent development as the most important part of your organization and employees must be included in system development and solutions. He specifically said, "IT curriculum needs to start in the first grade so student knows they can do technology." Canada and Europe have already modified their schools to provide training for students to learn coding.

Panel #2: Student Panel – Students in Global Trade & Supply Chain Management, Logistics, Cyber Security and Homeland Security Emergency Management give feedback on what they've heard during the Forum.

Moderator: Terry Dell

Panel Guests: Ederly Beausilien, Jeremy Gayner, Ruth Krizan, Alana Dacosta, JD Jenkins and Shane Moore.

Students from programs at Highline and Pierce Colleges participated on the student panel. 2020 will be 50 billion interconnected. Terry asked each student to share their perspectives on what they had heard

from the presenters and panelists regarding the rapidly transforming technologies impacting the trade, supply chain and security fields. Each of the student's panelists shared their perspectives and agreed with many of the issues raised by the Forum. Shane Moore, graduate of the Homeland Security-Emergency Management Program at Pierce College, made the point that, "it is essential that colleges need to recruit, train and constantly re-train their faculty and graduates in order to stay one step ahead of criminals who manipulating our IT systems for their benefit." Other panelists agreed and also pointed out that currently system beaches employ error based processes such as passwords and we need to structure our processes more effectively in the future to address this issue. Students recommended that our college programs need to train students more in the business continuity aspects of securing the supply chain and faculty need to stay current on the latest advancements and tech processes so they can prepare their students for the current workforce requirements.

Tommi Robison, HSEM Center of Excellence Advisory Board Member, and Director of Strategic Development with Aronson Security in Seattle provided two scholarships worth $850 for two of the student panel members, Alana Dacosta and JD Jenkins from Highline College, to attend the 2019 "The Great Conversation" (TGC). The TGC conference https://www.the-great-conversation.com/ is a two-day international conference held in Seattle every year which brings security professionals and organizations from around the world together to learn about the newest and most important strategies driving the security industry.

Panel #3: Policy Panel - Policy experts discuss how policy will be impacted and needs to be adapted to emerging technology.

Moderator: Sam Kaplan, Director, CoE for Global Trade/Supply Chain Management

Panel Guests: Steve Marshall, Transportation Technology Partnership Manager, City of Bellevue, Alisha King, Certified Emergency Management with WATECH, and Joseph Williams, ICT Sector Lead for Governor Inslee at the WA State Department of Commerce.

Steve Marshall is Transportation Technology Partnership Manager for City of Bellevue. He advocated the future beyond oil based transportation - ACES (Automated, Connected, Electric, & Shared Vehicles. Seattle is the 6th worse traffic in US. Bellevue is switching to electric busses.

Alisha King is Certified Emergency Manager educator working for resilient communities. One application of AI and IOT would be Dept. of Homeland Security requirement for vehicles be equipment for notification of flooding. This would need crowd source data, knowledge of road conditions, and privacy of individual vs. social notification. "Scrub data" is a current issue of crowd sourcing: who views the data, political use most of the people data are not suspects, and globally where and how is the data held.

Alisha commented that, "Currently transportation and medical systems are targets for random ware because they can't have down times. Negotiation with terrorist is a mistake even if the system is recovered. The terrorist owns all the system information. WA is the first in the nation to have NIMS cyber response teams."

Joseph Williams is WA ICT Sector Lead for the Governor since 2016. Joseph said, "Currently WA is losing some of businesses to other states." He shared an example such as Texas which offers $5000 per employee as an incentive to move and where there is a lower cost of living. He advocated that WA

needs to set policy at the state level for block chain applications. He feels block chain automation does not have the data infrastructure needed for the vast level of storage required. He believes, "the tracking level for Block Chain will need improvement in government policy." He gave an example of a box used for tracking may need to be mounted on a public utility pole to mine data and this box may need the capability to "scrub data" and only send relevant data for storage.

 Panel #4: Faculty Panel - Faculty members from community colleges participated in a discussion responding to the Forum's earlier presentations.

Youtube video of discussion: **https://www.youtube.com/watch?v=UicVzA0xpwM&feature=youtu.be**

Moderator: Lindsay Williams. Director, Center of Excellence for Agriculture and Natural Resources

Panel Guest: Linda Cradra, Faculty Tacoma Community College, Alan Van Boven, Supply Chain Program Advisory Board Member, Lake WA Technology College, and Steve Lettic, Faculty/Program Director for Highline's Public Safety/HSEM Programs.

Lindsey asked the panelists a series of questions which included the issues of student preparation and are they able to get jobs in their career fields when they graduate.

Alan Van Boven questioned whether colleges needed to teach in depth specific technologies because of how rapidly these technologies are changing. He believes that what the colleges in their supply chain management programs need to be teaching students is about the roles and impacts of technology and how that will change the business.   He encourages the focus needs to be on educating students on how to think and learn vs spending time teaching specific technologies in depth.

Steve Lettic focus is on technology used and potential misuse in criminal justice.   He gave several examples of what are the positive aspects of new technologies such as use of automated vehicles be in the supply chain that could also be used in criminal activity. He teaches about how data analytics is being used in policing and how predictive data analysis can have unintended consequences directing law enforcement to focus on policing activities that could be seen as discrimination.   He said legal issues around privacy and data use are critically important and automation could lead to issues of evidence rulings related to date used in crash, a search warrant, and cell phone evidence collection. He also shared his concerns regarding impacts on over reliance on technology and gave the example of the current reliance by officers on their GPS to get them to a crime scene or event. What would be the impacts on public safety if GPS was unable?

Linda focused on helping participants understand the importance of helping students be able to critically think and gave examples of how to build student confidence and experience in applying critically thinking and analysis in everything there are learning. She uses SWAT analysis to expose her students to looking at all sides of issue. The example was vehicle automation which would ultimately put people who are truck drivers out of work but that will create other jobs as well that people can be trained in. She talked about the current education system which is structured so it is unable to nimble and adaptive to rapid change effecting the knowledge, skills and abilities needed to be taught to students.   Her example was the fact that is can take up to 4 years to get curriculum updated in the current college system and this does not allow faculty to adapt their curriculum to the rapidly changing technology environment. She suggested that employers could play a role in helping colleges understand the critical need for them to be nimbler in responding to technology changes and implications for education.

Forum Summary – Linda Crerar, Director, CoE for Homeland Security-Emergency Management

Linda thanked everyone for their attention and participation in these important discussions. The Centers and their staff and Forum Work Group members worked to design the Forum so we were bringing in a variety of experts and expertise in a structure where our speakers and panelist could share their perspectives and dialogue with our participants. We had excellent representation from all sectors and our student panelists were exceptional and got us all thinking about how we can support them more effective in their learning objective. Linda asked participants to share their key "take away" from the event and also encouraged everyone to complete the evaluation/survey form and attend the networking event.

Participant comments:

- You are never too old to go back and get education. Never stop learning.
- Artificial Intelligence (AI) will bring lots of challenge to law enforcement.
- Coding is a universal language that needs to be brought to K12 skill set.
- Combine courses to strengthen first and second grade skill and competence for coding.
- Don't change business product, it doesn't matter what technology used.
- AI not a general system, systems may vary.
- Never too late to educate and we have a talent problem not a technology problem.
- Education need to use apprentice programs to channel students in white and blue collar jobs according to interests.
- Train students first then have them come back to college for additional specialized learning.
- Bring in technical experts who can discuss the benefits of using systems and services like AWS, Azure, Block Chain and others and the lessons learned moving to those systems.
- More exposure to how innovative organizations are making changes in the industry, like Amazon, to discuss how the Cloud, LoT, and digital transformation is impacting Logistics now and for the foreseeable future.
- This was an excellent program.
- Liked all of the guest speakers and panelists. They all had wonderful points and all different perspectives.
- This has been one of the most informative forums I have attended. I appreciate every aspect.

Participant Survey/Evaluation Summary
Completed by the Center of Excellence - Global Trade and Supply Chain Management
provided the following survey and evaluation

Securring The Supply Chain Evaluation Form

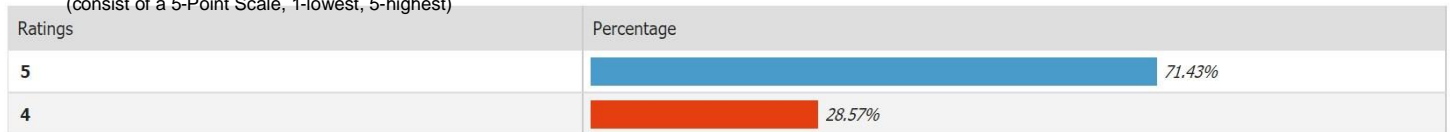The 4th Annual Securing the Supply Chain Forum occurred on Thursday April 27, 2018.

During this one-day event, the Centers of Excellence (Global Trade and Supply Chain Management & Homeland Security for Emergency Management) focused on the Internet of Things and it's impact on the supply chain.

The forum brought together strategic, operational, and IT professionals and students who explored how technology is improving supply chains now and in the future.
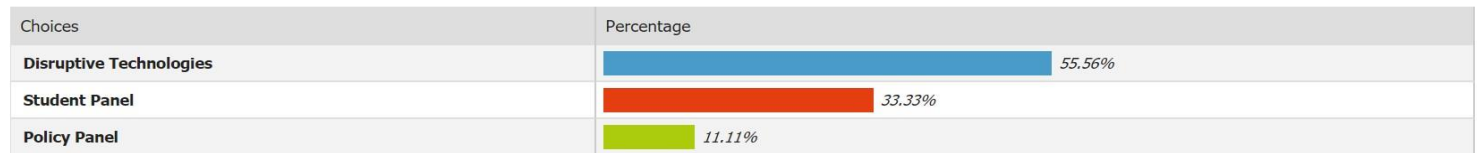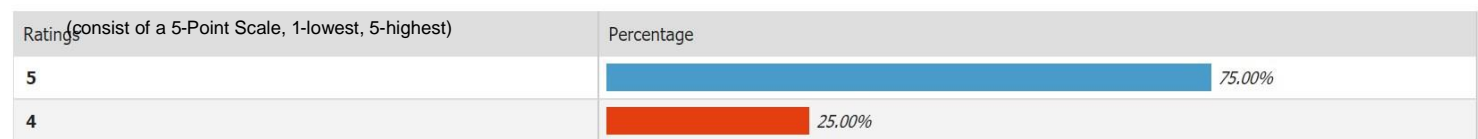
Are you a.

- Faculty
- Student
- Industry Employer
- Non-Profit
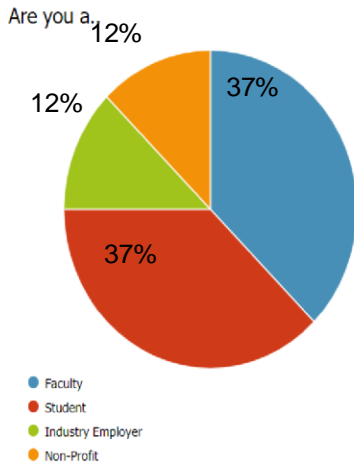
Overall, how would you rate the event?
(consist of a 5-Point Scale, 1-lowest, 5-highest)

Ratings	Percentage
5	71.43%
4	28.57%

Which panel was most interetsing?

Choices	Percentage
Disruptive Technologies	55.56%
Student Panel	33.33%
Policy Panel	11.11%

How organized was the event?

Ratings (consist of a 5-Point Scale, 1-lowest, 5-highest)	Percentage
5	75.00%
4	25.00%

How would you rate the food served at the event?
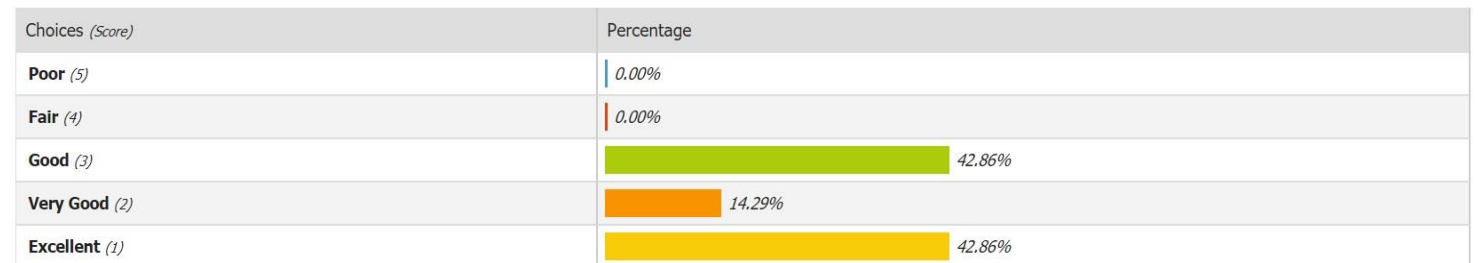
Choices (Score)	Percentage
Poor (5)	0.00%
Fair (4)	0.00%
Good (3)	42.86%
Very Good (2)	14.29%
Excellent (1)	42.86%

The Centers of Excellence for Agriculture-Natural Resources, Global Trade/Supply Chain Management and Homeland Security-Emergency Management presented the 4th annual Securing the Supply Chain Forum April 26, 2018 at Highline College. The Forum focused on "The Digital Transformation of the Supply Chain."

"Business, government and education must prepare for an avalanche of new products and services Tying together assets, information and, well things. This will affect industries, society, culture and Of course, the supply chain in ways big and small, obvious and subtle." *Forum Workgroup Members*

The Forum event staff and Centers want to thank everyone for joining us again this year for another Exceptional practitioner and educator profession development event.   Our experts in the field shared their perspectives on how to bridge gaps, optimize operations, improve decision making and increase efficiency and enhance better customer relationships for an added competitive advantage. Presenters and panelists represented "movers and shakers" in the field, policy experts, government and educators.

ACKNOWLEDGEMENT TO OUR FORUM STAFF

Sam Kaplan, Director, CoE, Global Trade & Supply Chain Management, hosted at Highline College

Kaitlin Bermingham, Program Manager, Global Trade & Supply Chain Management

Jasmine RaeLynn, Social Media Assistant, Global Trade & Supply Chain Management

Lindsey Williams, Director, CoE, Agriculture and Natural Resources, hosted at Walla Walla College

Linda Crerar, Director, Homeland Security-Emergency Management, hosted at Pierce College

Kellie Hale, Program Manager, Homeland Security-Emergency Management (HSEM)

Nancy Aird, Special Projects Coordinator, HSEM

Shane Moore, Employer Engagement and Education and Outreach Specialist, HSEM

Jasmine May, Communication/Social Media & Graphics Design Specialist, HSEM

Justin Whitney, Videographer and Production Manager, HSEM

SPECIAL THANKS TO OUR SPONSORS

C S C M P – Puget Sound Roundtable

Foster School of Business, UW Global Business Center

Trade Development Alliance of Greater Seattle

Aronson Security

Highline College