

# How to Mine Job Listings to Parse Employer's Needs

## August 17, 2017

Michael Lesiecki - This webinar will be recorded and you will receive a link to the recording and the slides. I'll tell you more about myself in a moment but I'm Mike Lesiecki and I'm your host and presenter today our topic *How to Mine Job Listings to Parse Employer's Need*.

### **Webinar Details**

#### **The CCTA is led by**

Michael Lesiecki - Before I tell you a little bit about the CCTA let me remind you that today we're using the Cisco WebEx system this is new system to us as we move forward into this academic year so please have a little patience with us as we bring up the polls and manage the Q&A; and in general handle that system, so thank you. The CCTA is led by five centers you can see them here on the right the National Center for Convergence Technology; the SC ATE Center in South Carolina; the FLATE Center in Florida; Bio-Link and out in San Francisco and the Network's Resource Center at the Maricopa Community College District in Phoenix.

#### **CCTA Purpose**

Michael Lesiecki - You know the purpose of the CCTA is to provide technical assistance not only to Department of Labor TAACCCT grantees and NSF grantees but really to workforce oriented programs of all kinds. We do have deliverables, one of them is this webinar series you're listening to one of our deliverables today, in some of the webinars we feature one week later a live recording with attendee Q&A afterwards so that we can do that live give you another chance to ask questions. If you look at the CCTA website you'll see a number of white papers on best practices and we host convenings at national events.

#### **Poll #1: Your Affiliation**

Michael Lesiecki - Now that I've told you a little bit about that, let's start by asking you a question in the first poll so Christina could you launch that poll for us. Folks what you'll see in just a moment on the upper right there it is on the upper right of your screen the polling button in the middle of your screen it says what is your affiliation so go ahead and click on which ones that you have we'll give you just a minute you probably know the answer here and we'll ask Christina to show those in just a minute so please tell us if you're involved with NSF, TAACCCT, both or neither. Christina I'm going to give them a few seconds I'll count down and then let's take a look at the results 5, 4, 3, 2, 1. Let's go ahead and close that poll, oops don't forget to submit your responses I forgot to submit there okay let's go ahead and take a look at the results. Just a second folks while we take a look at this, well there's results thank you very much Christina. So here's the results that we're seeing on the screen and you can see them for yourself the majority of the people are not involved with either of these grants that's interesting and fair a number of us involved with the NSF, some TAACCCT, a few both let's interesting so let's go forward. Let me change; let's close that poll Christina and I'm going to advance to the next one.

#### **Poll: How many people are listening with you?**

Michael Lesiecki - Now for purposes of demonstrating our impact on this next poll it'll come up there in just a second how many people are listening with you I know sometimes in our work group we'll sit around the table project the on the screen and listen together so is it none just yourself of course or one other person or three or more go ahead and submit your answers don't forget to click like I did forget on

the lower right where it says submit well we pretty much know this answer right away so Christina let's give them three seconds and then we'll close the poll three, two, one poll is closed. And let's take a look at the results and then we'll get started with our webinar so thank you for participating in these polls today takes just a moment to bring up the results here. Okay well thanks while Christina is pulling those up I'm going to go ahead and advance to the next slide.

### **Meet the Presenter**

Michael Lesiecki - And we'll get started here today, let me tell you a little bit about myself I've had the privilege of being a Principal Investigator and Reviewer for both the NSF, the Department of Ed and NIH since 1989 in my background there's a bunch of stuff but in particular workforce development from my time at a large Community College District here in Arizona. Today my business Luka Partners is focused on evaluation and assessment and I'm also fascinated in making connections with industry making community college connections with industry and really that's part of the prompting for this webinar today.

### **How to Mine Job Listings to Parse Employer's Need**

Michael Lesiecki - So here's our topic *How to Mine Job Listings to Parse Employer's Need*, we do this a little bit differently today I'm going to tell you a story the story of my attempts to understand this that sounds rather grandiose doesn't it but I'd like to give you a bit of the story here so you can see what what's knowable what you can find out here within the limits of what we have, what can we know so that's the idea.

### **Acknowledgements:**

Michael Lesiecki - But now let me acknowledge my colleagues who helped me prepare this John Catapano, he's in the workforce development at the Maricopa Community College's he does a lot of data analysis there of these type of things. John Carrese, California Centers for Excellence is just a real leader in California about looking at data he works there with his colleagues. I had an opportunity to talk to Dan Restuccia at Burning Glass Technologies they're located in Boston, I'll tell you about that conversation. Mark Lashinske, he's the head of our industry advisory board here in Phoenix, he works at a really cool company called Modern Industries really high end advanced manufacturing company. My colleague Leah Palmer at Mesa Community College's really puts on her thinking cap when it when she thinks about demand and dealing with industry. So I appreciated conversations with all of these folks as we prepared for this story.

### **Points of View**

Michael Lesiecki - So what's the point of view today well out there listening are PIs, grant developers, workforce development personnel, faculty that's who this is for but it's probably not for the people who day-to-day use things like Burning Glass Technologies they know much more about this than all of us so it's not really targeted for them, it's targeted for us who don't know as much at this point.

### **Today**

Michael Lesiecki - Here's what we're going to do today, remember it's a story we're going to paint a picture of the need and rationale for doing this, why are we doing this and we might briefly talk about well how do we do it now how does curriculum keep pace now. We'll talk about the methodology that's used like looking to the demand side number in our educational world were the supply side the demand side is the industry side. I'd like to discuss what is knowable at the middle of the page there, what are the limitations and I know this is somewhat of a strong statement but how can this fundamentally, you

could get out your pencils and underline the word fundamentally, how does it fundamentally change your relationship with the industry. So let's start with the rationale for why we're doing this.

### **Job Support Our Gainful Employment Data**

Michael Lesiecki - Well here's one of them it's about jobs and jobs support our gainful employment data now many of you know what this means the Department of Education has created a ruling or legislation I'm not sure what it is, but every program at a public and private Community College's is required and it's turning on now to give essentially consumer information to students about what the cost will be of the program, what their prospects are for jobs, what they might make in those jobs so a lot of colleges are struggling with this because they're under the gun for to continue giving financial aid for students they've got to be able to show this data.

### **Gainful Employment**

Michael Lesiecki - I just went to one of our colleges, Mesa Community College and they're starting to put this up they don't even have a lot of the data yet but you can see students graduating on time, program cross, there's other things there. But at the heart of some of this gainful employment information are jobs our students getting jobs that's the critical thing and I think that's where today is going to take us how to deepen that relationship with employers.

### **Connecting Industry With Our Talent Pipeline**

Michael Lesiecki - Nice talking with my colleague Leah Palmer, I mentioned her you know originally and I said, "How do you connect industry with your talent pipeline," and she said, "You know, we struggle with this Mike."

### **Employer Recruitment Efforts**

Michael Lesiecki - She said, "Look at this data," she got this from the Manufacturing Institute a report that they did, so look on the right-hand side and what we see here is the top sources of employees this is a survey done by companies so look what's circled there in the middle, Community Colleges and they're like pretty far down on the list aren't they in terms of where their top sources of employees are. So we'd like to push that up higher.

### **Employer Preferred Strategies**

Michael Lesiecki - Let's look at this one, the employers were then said what's your preferred strategy for finding employees. There it is number two involvement with local schools and community colleges so it's funny right there number six is where they actually find employees and number two that's us is where they prefer them. So again if you're hearing a rationale here of why we should be looking to deepen this connection with industry.

### **It Sometimes Seems**

Michael Lesiecki - You know what sometimes seems my god the fields change overnight what in terms of skills you know now all of a sudden they're looking for skills in some special type of data analytics or things like that it seems to change very quickly. How can we keep up? Well this isn't an old question for educators, how do we keep pace?

### **Historically**

Michael Lesiecki - Historically I just found this sort of thing yeah I think we rely on our curriculum process and we people are sort of smiling about that because we know that this wheel takes a long time to go around right. We develop, we approve, we communicate, we evaluate, we assess and of course we

rely on our industry connections but I'm not sure exactly what that means you know, what do we do call our industry friend and ask them to review our curriculum? Sometimes we do, but historically that's been our process and again that timeline all of us know this is long like to change that a little bit, let's go to the next slide.

### **A Rhetorical Question**

Michael Lesiecki - I'm going to ask you a rhetorical question actually going to ask you three rhetorical questions you don't have to answer this in the in the Q&A; unless you want to. It says and the white texts there it's a little bit hard to read, how many of us swear our programs are tightly aligned to industries needs? I see the hands going up a lot of us swear that at least people I talked to said oh yeah we're really aligned to industry needs. So just think about that for a moment, answer that question in your mind.

### **Second Rhetorical Question**

Michael Lesiecki - Here's the second rhetorical question, how many of us had written a proposal or been part of writing a proposal in that need and rationale section right, it's always up there in the front where you're demonstrating the need and demonstrating the rationale, claiming we need to more closely align our programs to industry needs. Hands are going up all over the room, a lot of us do this in fact that's sort of a standard rationale we need to better align to industry needs, we write that all the time.

### **Third Rhetorical Question**

Michael Lesiecki - Third rhetorical question, when you're or when our if industry advisory board meets do we sometimes struggle when it comes to talking about needed skills? Look here's the reality right sometimes an advisory board we're largely telling them what we're doing and hoping to get some reaction it's not always true we'll talk a little bit about our business and industry leadership teams later on where we're trying to increase that conversation and in fact have industry lead that conversation but it is a problem right all of us many of us have been involved in these boards these advisory councils whatever you want to call them. So how do you talk with those people, what's the conversation? So those are the three rhetorical questions that I'm making you think about.

### **Question that came into the window**

Michael Lesiecki - Well I just looked at a question that came into the window the question says, "Mike can you stop telling us the rationale and just get on with what you're going to do here today?" I'm saying that tongue-in-cheek that's my reminder to stop talking about the rationale and get to the meat of today's story.

### **Looking At The Demand Side**

Michael Lesiecki - Here I'm asking myself questions, that's good. Let's look at the demand side remember I mentioned the demand side in the very beginning of the webinar. Well how do you do that, you look at data from a place like Burning Glass Technologies and others there are other names too and you're going to use that data to look at job postings, current job postings. Now this is not new this has been done for a while now I don't mean to say like it's just happening, but boy the tools have really increased in their viability to do this. So what are you going to do with that data? You're going to analyze it, you're going to look at number one; we're the top employers because that's important to know; number two, what are the top skills and are they looking for specific certifications; number three, what are the educational requirements and this one might not seem so obvious but what are the job titles many of you would recognize that knowing the job titles is important because that helps you identify the

demand if you know the breadth of titles that's always an issue for our programs, I bet you it is for yours as well. So think we're turning our eyes to the demand side.

### **We Are Not Talking About Workforce Demand**

Michael Lesiecki - I want to put out ,we're not talking about workforce demand, we're not talking about number of jobs look that's important I get it but that's not what we're talking about today I'm going to talk me more about the skill side. I'm just throwing that out there.

### **How It Works**

Michael Lesiecki - How does it work? Well, you use a data miner they don't like to call themselves data miners, Burning Glass Technology would like to be referred to as a software analytics company well that means their data miners but that's fine because today there's a huge amount of information can be gotten from there, there's other people many of you might know them EMSI, something called Wanted Analytics which was just bought out recently by somebody else so there are others out there. Burning Glass those are this is the one I know about so we might talk about that today.

### **What is Burning Glass?**

Michael Lesiecki - So this how it works you start with them, what is Burning Glass by the way? Well I took this from their website so it must be true right; it's an interactive report generating application that gives users a real-time access to a comprehensive database of demand, that is jobs data. Hmm that seems pretty good. Look at the italics were there this is what they like to say intelligence on the nature and context of the employer demand. Boy would I like to know that, I want to know the nature and context of the employer demand that makes me interested. I know this is what's on their website but nonetheless if they can deliver on that promise I'm very interested.

### **Next: Find Your Analyst**

Michael Lesiecki - What do you do next? You find a friend, you find somebody who has access to Burning Glass analytics they're usually going to be within either your IR department I'm sorry for the double use of the word research their institutional research research isn't exactly what I meant to say but in terms of your institutional research department or you can find them like I did with in workforce development and there's our building here in Phoenix at the Maricopa Community College's. So you've got to find your person who's got access because if you were to start just on your own there's a bit of a learning curve here better work with someone who does it routinely.

### **I Sat Down With John**

Michael Lesiecki - So I sat down with John. John, is a longtime colleague he does our Burning Glass stuff I said to John, "John I want intelligence on the nature and context of the employer demand," that funny I got that from the Burning Glass website so I thought I would try that on John. What did John say, he said, "Mike let's get started," so that was good answer.

### **What Industry?**

Michael Lesiecki - John said, "Mike what industry," and I thought to myself he probably means what the NAICS number is I wasn't sure about that but he told me that's what he wanted, the North American Industry Classification System many of you know it. It's a federal standard that classifies industries we're not going this isn't a tutorial on NAICS today but that's a good starting point that's what you've got to know John knew this stuff he knew how. I said, "John I want to do advanced manufacturing," and so we figured out a couple of NAICS codes.

### **What Occupations?**

Michael Lesiecki - Good. His next question, he said, "Mike what occupations?" Well what he really wanted to know was what was the SOC code. The SOC code that's the Standard Occupational Classification System, again it's a federal system that classifies workers. People have told me that SOC codes are not necessarily the best thing in the world; they don't always define an occupation. That be as it may be but the SOC codes are important, so you got to work through some of the challenges there.

### **O\*NET**

Michael Lesiecki - And I wanted to show John how much I knew. I said, "John maybe we should use O\*NET," he sort of looked at me with an eyebrow raised like Mike do you know what you're talking about here. Well O\*NET is this occupational information system, occupational information network and there's a link to it and John didn't know but I actually knew something about O\*NET, so I couldn't resist telling him, "Hey John, I actually helped write this O\*NET 51-91 41.00 semiconductor processor description years ago," I was contacted by the Department of Labor and I helped them write it so I knew a little bit about it. He knew a lot more than me so I couldn't resist showing off for him.

### **Untitled Slide**

Michael Lesiecki - He said, "Mike that's great but why don't we just log in," so we pull up his computer went to Burning Glass Labor Insight I guess there's a bunch of things at Burning Glass but this is where you go. And this is what Burning Glass says look at the italics folks on at the bottom; we mine and code detailed data from each job posting; hmm; describing the specific skills, education, experience and work activities and Burning Glass says hey this goes well beyond the occupation and industry codes offered in other sources. I think they may be right there okay, I'm liking it, I'm liking it and what I'm seeing so far.

### **Create a Report**

Michael Lesiecki - So John says, "Look Mike, we got to make some decisions here let's go into the create report tabs," now folks I'm not doing this as a tutorial on Burning Glass today I'm just giving you a sort of upper level view of what we're seeing here. So I made some selections these arrows said you know you can choose the skills, you can choose how it's shown. John says, "What time period you want to use Mike?" I said, "Well what are my options?" He said, "We could do last week, we could do three months, six months." I said, "Well give me the last year," that sounds fine and then we went on to the right hand side and we fiddled and we added filters and we did some O\*NET stuff turns out Burning Glass you can see the middle on the right there they sort of did some pre filtering of categories pretty useful. So we fiddled around, we clicked this and that and then we applied it and then we ran the skills report and this is what John showed me for advanced manufacturing.

### **For Manufacturing**

Michael Lesiecki - So what you see here on the left hand side is the skills starting with CNC Computer Numerical Control, machining, inspection, lathes and so on down you can see going down the calipers, lean manufacturing towards the bottom. And then there was a count of things in the bar chart did I say can click the right hand side those three bars are actually equal on this particular one so I was sort of fascinated I wasn't quite sure what to make of this at this point but I was somewhat fascinated. So I said, "John, we're going to have to look about look at this further."

### **Questions?**

Michael Lesiecki - But first folks let's pause for a moment here this is Mr. Thoughtful. I call this guy here Mr. Thoughtful; I'd like to know if at this point we might have any questions from the audience. Now I've got one here, it says how can I get a trial of Burning Glass, can I get a trial of Burning Glass? You know

I'm not sure they offer trial things I actually don't know you could obviously talk to them on the website that would be fine. I don't know the answer if you can do that I think the best thing to do is find somebody that's got Burning Glass, they pretty much like to talk about it so that's not a bad idea. Here's a second question what about duplicates, like if a job posting appears on multiple job boards does that inflate the answer? That's the question. You know I think that might have been true at one time but now these folks like Burning Glass have put in be de-duplicators I'm pretty sure what that means you know so that's really what they've done they pretty well cleaned up that although I think if you ask the same question of different analytical systems you will even today get different answers there's a lot to do with how it all works. So I thought I would just point that out so thank you for that question. Another question that came in from the chat, do we know a free system to do this? You know I don't know myself maybe if other views out there other participants might be aware if there's anything free go ahead and put it in a question window and I'll reproduce that, so I don't know if there's a free system I don't think so but I'm not sure of that question. Here's one more and this is funny does it look on Craigslist? Well yes in fact all job boards where things are posted seem to be pretty well covered by these systems so they are going to you know they're going to look across the spectrum here including of all things Craigslist and hopefully they're going to de-dupe all of this as well. So good I just want to pause there get people thinking and we're fairly recent into this so go ahead and use that question-and-answer pane on the lower right of your screen. Let's get ready now because before we go into the next section I want to ask you a question via the poll.

### **Poll #3**

Michael Lesiecki - Christina let's pull up poll number three. There it is folks it's right in the right hand side. I'm curious have you used data mine approaches like this before like the Burning Glass stuff now maybe not yourself or maybe you've worked with somebody, have you yes to determine the number of jobs forecast remember I'm asking a very specific question here have you used this to determine the job forecast not the skills that's coming next but I want to know if you've used this to determine the number of jobs. So the questions are yes to determine number jobs or no not yet, so please go ahead and click on your answers. And then Christina we'll give them just another moment they probably know this answer five, four, three, two, one go ahead and close that poll Christina. And then let's see if we can take a look at the results, so get ready for the next question folks while Christina is doing this because the next one I'm going to ask you about the skills. Can you just pausing for just a second till we take a look at the results and there they are so I'm pleased just slightly under half have used this so you have some familiarity with the system go ahead and close that Christina excellent. So a bunch of us the majority in fact haven't used it for jobs okay let's go to poll number four Christina I'm going to click forward to number four.

### **Poll #4**

Michael Lesiecki - I've used data mining approaches like this to determine skill need; yes or no so think about that let's see if that ratio changes that we saw just a moment ago. Yes to determine skill need no not yet. Okay thinking, thinking, thinking it's not hard to put in your answer click those buttons. Christina here's the countdown five, four, three, two, one let's go ahead and close that poll and we'll pull up the results. So let's hold on just a second, to me this this idea of using it for skills is relatively new to me maybe not to everybody certainly. Okay and there's the results so that's interesting see everybody sort of like me doesn't it make me feel better, no not yet oh man I'm happy I'm happy that you came to this webinar; go ahead and close the poll Christina; because we can talk about this thing's and try to see what's really here. I'm going to click forward now.

### **Back To The Story**

Michael Lesiecki - Back to the story after that lovely polling guy you know in spite of John my good colleague showing me these things and telling me about this I really wasn't sure what this was telling me yet. What the sort of detail was there, I wasn't sure. So what did I do?

### **I got on the phone**

Michael Lesiecki - I got on the phone, so there's me holding my phone.

### **Dan Restuccia**

Michael Lesiecki - I called Dan, Dan Restuccia, he's Chief Analytics Officer at Burning Glass I said well I should call the Chief Analytics Officer that sounded like a good idea but maybe I shouldn't have been surprised but he was happy to talk to me, so we talked.

### **Untitled Slide**

Michael Lesiecki - Dan said, "You know when we use Burning Glass what we're trying to do here is sort of unique, we're trying to predict and understand the future from looking at the recent past." I'm thinking that's an interesting perspective that's what these analytics people do; they look at the recent past and try to predict what's going forward. Dan said, "If we can make skill projections by looking at individual skills today and skill growth, we can gain insight," and Dan said, "I mean insight into how this thing is evolving." He says, "I can give you a snapshot today," he says, "But what I think is really interested is if we can see how this is going to evolve with time" I said it, "Dan I like it, I like this idea."

### **We Care About**

Michael Lesiecki - Wait a minute, yes so here we are. We talked you know what we care, educators care what are the most common skills. Well that makes sense right because educators build their programs around those common skills.

### **They Care About**

Michael Lesiecki - But Dan said, "You know they care about, industry cares about what are the most distinctive skills," because that helps them push what they're trying to do so when they're look when they're writing their job descriptions they're often looking for distinctive skills. I said, "Dan tell me more." He said, "Mike certain firms or clusters or hubs of industry are probably going to be the leaders," he says, "For example you know in the IT world you could say well Google or Microsoft are leaders they're probably identifying skills for them today and it's probably going to trickle down into other companies pretty soon in the future." He said, "Give me a name of somebody in the Phoenix area that you think is a leader in advanced manufacturing." I said, "Well Boeing has a manufacturing thing here a helicopter place." He said, "See that's what we're talking about Boeing is really a leader in advanced manufacturing technology, what they're doing today is likely to trickle down into other aerospace firms." He says, "So you can gain some insight by looking at specifically focusing on leaders or groups of leaders." He was starting to get my attention here because I hadn't thought about this before; he was really starting to get my attention.

### **Consider**

Michael Lesiecki - And then Dan said, "You know look at Tesla," he says, "If you look at their job descriptions it's like a tech firm, they're looking for software skills. It's like looking at a technology company." He says, "You turn to Ford," he says, "I don't have anything against Ford, I like Ford, but they look more like a conventional manufacturer." He says, "It's amazing what you can get as a sense of industry by looking at their postings you can actually look at each one of the postings at these places."

Fine, so suddenly in the middle of this telephone call I'm sitting up straighter because I just couldn't believe it I had this idea.

### **That Gave Me An Idea**

Michael Lesiecki - I had this great idea right in the middle of this call. So here's the back story in Arizona, there's a car company called Lucid Electric Car and they've announced plans and their plans so far to open a big manufacturing plant south of town here in maybe 50 miles from here, electric car company and I thought well man I can go to Tesla because I know they have a manufacturing battery place up in the Reno area I could look at their job postings and try to get a sense of what they're looking for because that's got to translate to other electric car companies, Tesla being a leader in that area. And Dan said to me, he says, "Mike that's called stealing from the playbook, your idea is a good one you just look at what other people do and where they're going and you can get a lot of hints that's going to help you tighten up your programs there are the colleges in Arizona to try to respond to this." I was excited I was thinking oh man I really had an idea of my own here. He said, "Yeah of course that's what you do."

### **Reports**

Michael Lesiecki -All right so Dan what reports should I run? He said, "Well I think you really can learn a lot by looking, somewhat surprisingly at the software skills and the baseline skills," those are names of reports. He says, "You can learn a lot there," he said, "Now here's an interesting one Mike I think you might use like in your electric car company there's a key word function where you can type in like a key word let's suppose you use battery well that could really widdle down your search into very specific things that might be important to you and who knows what way that might be important." I thought of something that's pretty good I said, "Dan what about certifications," you know we have folks who work I'm just going use Department of Labor grants as an example and certifications are important because it helps them identify qualifications he said, "Mike to tell you the truth there are very few explicit requests in job postings for certifications there's an exception welding often has that you know they're looking for welders certified in a very relatively narrow area that will often be their pieces but in general I'm talking about less than 10% will mention explicit request for certifications." So I had a little sigh there are my shoulders sunk a little bit because, I was hoping to find out more about the demand for certifications but I'm just not going to find it here. Dan said he was just being you know honest or what they're seeing in the data, okay, I'm happy I'm really learning stuff.

### **Dan's Advice**

Michael Lesiecki -Here's Dan's really sort of final bit of advice here he said, "Mike don't worry so much about the numbers on a chart like this," he said, "there to be honest a little less meaningful than the relative numbers." What you're seeing here is when someone's looking for a machinist in the advanced manufacturing area in your locale in the last 12 months they're really focused on CNC and machining in general so that's not surprising. So I'm looking at myself I said okay this is looking good and I'm scanning my eyes why don't you follow my eye down to number three on the list there where it says inspection. Inspection I know our advanced manufacturing programs here pretty well I know them and I'm thinking how many times have we talked about inspection in our courses, not all that much I'm thinking myself this is number three and I'm thinking we hardly even talk about this so boy did this get my mind, my mind is spinning at this point well it was fun talking to Dan.

### **Industry Advisory Board Meetings**

Michael Lesiecki - So I started thinking how do I use this information with my industry advisory board now we call those BILTs Business and Industry Leadership Teams and many of you know Ann Beheler, I think she's on the line with us today who's at the CTC Center at Collin College, they sort of created the

BILT model and we and others have followed it. It's been very effective for us, but I'm thinking when I meet with the BILT again this is going to change the equation. So I used a bigger font there for change the equation because I want to make a big point, people are thinking themselves Mike is changing the equation who does he think he is no I'm just joking. Here's my thinking, employers can react to the data instead of us telling them about their programs they can react to some data, they think like that, they like to react to data and Mike I thought to myself job postings are their way of telling us what they want. Well it's probably obvious to a lot of you but for me these little bells are going off, now I know what to do at my next BILT meeting I'm going to do this.

### **Business and Industry Leadership Team**

Michael Lesiecki - So here it is the Business and Industry Leadership Team, we made one of the smarter decisions we made instead of having you know these are what we would call industry advisory boards instead of having them chaired by an educator we had them chaired from industry and so our chair is from Modern Industries and here's their logo. So I'm thinking before my meeting this is what I'm going to do.

### **Conversation**

Michael Lesiecki - I'm going to go onto Burning Glass and find out about modern industries, what they're looking for. So now I'm going to sit down with Mark Lashinske, he's the chair and I'm going to say, "Mark we ran the data," those are beautiful words to an industry person's ear they're thinking this is somebody I could actually talk to and then I'm going to say, "Mark our analysis of your job postings shows the following," Mark is sitting up straighter in his chair at this point because he likes this.

### **Skills at Modern Industries**

Michael Lesiecki - I said, "Mark I pulled over the last 12 months six postings that modern had under advanced manufacturing these are the skills that modern industries is looking for." He's looking at the data, by the way folks look at number two inspection remember how I was talking about inspection and I was sort of surprised because Mark is looking for lean manufacturing, we talk about lean in our classes that's an important thing, and of course there's CNC and other stuff like that there. But I'm struck because leans number one but inspection is number two, I show this to Mark.

### **2<sup>nd</sup> Highest Skill**

Michael Lesiecki – "Mark could this possibly be right, inspection is the second highest skill?" You know what he said, he literally said this, "Mike yep inspection in general is a high demand skill," holly cow my world changed right in that moment, I'd shown an industry partner this information told him our analysis and he agreed so now I'm thinking, I gotta talk to the faculty in our programs, we got to talk about inspection and see how we can ramp this up a little bit more or maybe it's there and I don't know it. But boy did this give me some information to do this. So I'm telling you this story not because it's a great story, well it is sort of a great story but hopefully you can use information like this one, so thank you Mark.

### **Untitled Slide**

Michael Lesiecki - You know this has been a pretty local discussion so far right I'm focused right on my locale and effect an individual industry member but of course you can look more broadly. Let's get on the plane let's travel to California and look at a bigger picture, you can drive if you want to you don't have to fly.

### **Life Sciences & BIOTECH Middle Skills Workforce**

Michael Lesiecki - So my colleague John Carrese, I guess he's City College of San Francisco but his main thing is the Centers for Excellence in California. He and his colleagues published this in 2014, John told me they're just about ready to release a new report so I have to keep our eyes open for that so let's look more broadly no we're not going to spend a ton of time on this but I want to give you the big overview here. Here's their title *Supply and Demand* keep that in mind *Supply and Demand Analysis* that's a good word *Life Sciences Biotech* okay *Middle Skills Workforce*, that means you know something less than a four-year degree. So you can see the frame of what they're doing, what did John and his colleagues do?

### **Process (On A Lager Scale)**

Michael Lesiecki - Let's look at their process remember we're now at a much larger scale wouldn't surprise you he's doing some of the same things right. Defining the industry sectors, where they started so he used them NAICS codes and they said let's notice the five industries sub-sectors now to be honest John has a team there it wasn't just John right so they a lot of data, a lot of stuff to be done here so don't underestimate the challenge of doing this on a larger scale. Okay they got their five sectors, next what are the occupations, well he told me look these SOC codes they can be challenging he says they don't always represent what's out there he says I'm sorry Mike they just don't but they did the best they could they chose two groups they said let's do this you know six groups here fourteen groups there's at least we can know what we're talking about we'll be able to analyze our results in these two areas. Now they said okay we've got this defined let's go ahead and analyze the industry demand that was their next step.

### **Demand Side**

Michael Lesiecki - So what they did is used EMSI for projected job demand and sure enough they use Burning Glass for the top employers, the top skills, the educational requirements and the job titles so it did this analysis they turn the crank, they got out their Burning Glass and EMSI analytics.

### **Process (continued)**

Michael Lesiecki - What really this did was help them understand the employers who they were dealing with the employers because they could identify who the employers were if they didn't know them. So they got the demand, what did they do next? They thought about okay remember the title of this report is supposed to be demand and supply so they said what's the supply side. Now all of us online we're a bit more comfortable with the supply side because that's us, we go to our college usually our institutional research or whoever whatever it's called within our colleges or our district and they say well what's our what's the number of completers in this program, what's our retention, what our how many graduates do we have, we know those things right we can get those things takes a little doing but that's our supply side. So then now they've got those things they've got the demand side the supply side now they turn to that skill data and started looking more closely at the skills, this whole report wasn't focused on skills it was just part of it.

### **Skills**

Michael Lesiecki - So I pulled this table from their report. You can look for yourself, I just did a screenshot so it's not perfect, top required skills for job postings in California so he looked at 2,800 and so data. I was very pleased to see this because on the left here the top technical skill for these biotech people was chemistry now people who might know me know that I claim chemistry as the most fundamental skill doesn't mean just because I was trained as a chemist but I always say that. So I was really excited to see how important chemistry was oh my God look at what number two is its inspection what's happening here but it wouldn't surprise you to know that things like GMP good manufacturing

practices and other stuff are important there as well. I'm not going into this report today I'm just giving you a sense of the skills that they're seeing. Notice they chose Tabular format instead of the bar chart format for their presentation here that's good.

### **One of Their Findings**

Michael Lesiecki - Here's one of their findings and boy this finding wouldn't surprise you at all would it, the community colleges in California provide important training for these jobs okay good but they might need to expand their capacity and align their programs to meet employer demands. What they really mean by this, is when they looked at the employer demand and the number of students coming out of their programs there was a mismatch so that gave them some impetus for some of the colleges in the system to create new biotech programs. You've got to be careful with this you just can't create a program at a whim today right you have to understand the demand very carefully. That was good I thought it was a great finding for them.

### **Summary**

Michael Lesiecki - So its fun it's a good it's a good report I'd like to encourage you to take a look at it. So we're coming towards the end of my story is a little bit shorter webinar today you're tired of hearing my story I know but let me tell you what you learn today and what you can now do. Number one, you can see the rationale for doing this right you I know you're convinced that using this data mining approach can really tell you something, I betcha there's limitations too but I bet you there are things that we can know and I hope that you can find somebody if you can't if you don't want to get out your checkbook and by Burning Glass Analytics for your own little computer find somebody who wants to do this I was talking with a colleague and he was telling me that these sort of analytics are sometimes held within the economic development arms of the local governments they'll also subscribe to them. I bet you can find a subscriber to let you in, and now say to them I want to look at the demand side, the demand side, that's what you're going to say.

### **Summary (continued)**

Michael Lesiecki - There's more summary, you know what those of us who are writing proposals and boy upcoming in the fall there's all kinds of stuff going on there's NSF proposals for October, there's ASI, Informal Science Learning coming up and all kinds of things ATE coming up in the fall. So many of us are already working on proposals I bet that when you get to that need and rationale story when you're talking about aligning programs that's a common thing you can use this stuff. Number two, this sounds funny to say it like this you can now talk to industry, well you're thinking wait a minute Mike, I could always talk to industry before what do you mean now I can talk to them? What I mean is now you could use a certain language that has to do with data in some cases their own data to talk to them and I know for our business and industry leadership team meetings this is going to help tighten that relationship. Third bullet you think about what they didn't California you could see how this could be applied more grandly maybe you've got a big consortium maybe you got a statewide thing I don't know but the cool thing about these filters is you can put in a town or you can put in a county or a state or the nation if you want to so you can you can get data in various levels of granularity. And the fourth bullet I know everyone is very happy that they attended today so that's one of the summaries for this.

### **Questions**

Michael Lesiecki - We're going to spend a little time now with some questions and then I've got a few closing announcements for today's webinar. So go ahead and fling those questions into the question and answer window oh here's one, can you exclude words from a search? You know that's an interesting question I have to tell you my own experience with that, probably show some of the limits of the system

so I'm searching under advanced manufacturing right under job titles and one of the groups that comes up and it's not a small number is Baker's I'm thinking well I suppose in a way you could think of that as advanced manufacturing but I don't want, I like to bake, but I don't want them to necessarily be part of our data set so it turns out you can exclude keywords. I could go in there and say exclude bakers or baking or whatever it was. So yes you can actually exclude that from the system. Here's another question that talks about currency of the data, how current is the data? Well you know I wondered about that too and in fact the data is real-time. Now what does it mean, a week I don't know but it's pretty close to real-time, I mean remember they're using spiders right Burning Glass has a spider and it's out there crawling web sites, it's crawling job postings and sending back information. I'm not a coder I don't know how spiders work but I know it's pretty darn close to real-time maybe you know 24 hours that sort of thing as sites update but they're out there crawling around hope that doesn't freak you out but they're but they're crawling around looking for this sort of information. Here's the final question that we will have time for today, how far can you narrow this down like advanced manufacturing is a very big field? Well it's a good question because as you delve into this you'll have to spend some time with these codes those SOC codes and O\*NETS and stuff like that it's not a perfect world and I would say this whatever you're doing, whatever report you're running make sure you understand the filters you use to get that report that will allow you to reproduce it in the future, it allows you to show your results to people and have them you know here's the parameters under which I ran this right that's the idea that we're doing here. So hopefully that's the key thing that you're going to take away today, let me click forward to the next slide, and if you do have a last minute question go ahead and throw it in while I'm making these final announcements.

### **Join Us – All Webinars 3 pm Eastern**

Michael Lesiecki - You know this is the most wonderful webinar series I have to tell you the truth because it really talks about things that are important to technical educators, technical development personnel, community colleges and other places. The next one is coming up just next month September 21 preparing; oops excuse me excuse me just a second folks, I'm sorry that the system clicked over we'll get right back to it there we are; *Preparing for the Future the ins and outs of Succession Planning*. Well what is succession planning I mean industry uses it all the time and educators are supposed to do it we've got two expert presenters Marilyn Barger she's the PI at FLATE in Florida and Phil Centonze, Phil excuse me I know Phil he's a Director of Client Engagement at FloridaMakes, they really live secession planning and they'll tell you about their experience, some ways of measuring it, some ways of monitoring it, I think that's important for you to realize and to be part of.

### **Join us in Miami, FL!**

By the way we're always involved in and CCTA who works at national conferences as well including this summer's HI-TEC conference it was in Salt Lake City but next year put it on your calendar July 23 through 26, 2018 in Miami, Florida and there may be sessions there we're still in the shaping and planning things for well where we'll engage the CCTA community.

### **Webinar Survey**

Michael Lesiecki - As we get to the end of our webinar as you exit the Cisco WebEx system a new window pop-ups and it says I got some questions for you there's only four questions so I hope that you'll take just a moment to respond to that survey as you close out today. I'd like to thank you for listening to my story, sure was a lot of fun telling you this story I learned a lot by talking with all of my colleagues getting ready for this webinar. So thank you doing this CCTA forever, I always say that at the end of the series. Thanks for joining today, look forward to us go on to the website take a look at their upcoming webinars and that officially ends our webinar for today, thank you.