**WorkforceGPS**

**Transcript of Webinar**

**H-1B TechHire Grants**

**Understanding Trends in Tech-Based Careers Using Labor Market Information and Real-time Data**

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LAURA CASERTANO: And now, I'm going to turn things over to your moderator today, Megan Baird. She's a program manager for the U.S. Department of Labor, Employment and Training Administration. Megan?

MEGAN BAIRD: Thanks, Laura, and hi, everyone, and thank you for joining us today. We wanted to take a moment to get a quick sense of who is on this webinar, and I see lots of you are telling us what grant program you're with, who you are, and where you're joining us from.

It's great to see that it looks like some of you have also brought some of your grant partners, and we'd like you to also take a moment to select the role that you are serving for your TechHire grant. Are you an authorized representative, the program director/manager, IT or data management staff, training partners, employer partners, service provider, or if you are an other role, if you could please type that into the chat function?

Great. It looks like we've got a lot of program directors for the TechHire program joining us today, which is great to see, and some others as well that are supporting TechHire grant activities. A few authorized reps too. Great. And you can keep on typing in who you are. I see we've got some grant specialists on the phone too. Excellent.

So now that we have a better idea of who has joined us this afternoon, I'd like to officially welcome you all to the H-1B TechHire webinar on understanding trends in tech-based careers using labor market information or what we'll refer to as LMI and real-time data.

Again, I am Megan Baird. I am the program manager with the Department of Labor's Employment and Training Administration in the Division of Strategic Investments, and I will be facilitating today's webinar.

I am joined by several speakers, each of whom will share their expertise on the use of labor market information and other relevant data in support of your TechHire project. We are excited to be joined by these subject matter experts.

Joining us first will be Michael Wolf. Michael is the division chief for Occupational Employment Projections at the U.S. Bureau of Labor Statistics.

Also joining us is Rebecca Rust. Rebecca serves as assistant commissioner over the Office of Occupational Statistics and Employment Projections within the U.S. Bureau of Labor Statistics, and this office covers the occupational employment statistics program, including wages, and the employment projections program, including the occupational outlooks handbook and career outlook. And I'm sure some of you joining us today have seen these before.

In addition, we are also joined by Stephen Lynch who is the director of Workforce and Economic Development Solutions for Burning Glass International, and as director Stephen promotes strategic partnerships and informs solution designs that help workforce and economic development professionals match talent to opportunity.

We are also joined by Sara Lamback who I'm sure many of you know from CBX technical assistance events. Sara is a senior program manager with Jobs for the Future's Building Economic Opportunity Group which focuses on providing solutions to help low-income adults train for and succeed in jobs with career advancement potential.

And also joining us is Akeelah Harrell, who you also know from previous technical assistance events. Akeelah is a program manager with Jobs for the Future.

Before we get started, I wanted to cover some of our main objectives for today, which is to help you better understand the dynamics of technology-based jobs, including the relevant skills, credentials, employment demand, and other trends in your local area through the use of labor market information data.

While all of you had to use labor market information in the development of your projects, our goal for today's webinar is to highlight how labor market information data can be used on an ongoing basis to support your TechHire program goals.

And during today's webinar we will learn about the specific types of labor market information and other types of data that can provide insight into H-1B occupations and industries you may be targeting through your TechHire grant.

The webinar will also highlight how this data can help your project in several specific ways, including participant placement, employer engagement, and ensuring your training design meets the needs of employers. And finally, we will focus on the role of labor market information and other data in supporting continuous improvement.

And as a reminder, traditional labor market information is produced by agencies of the federal or state government and is provided free of charge. Other data that is aggregated through job postings or from resumes or online career profiles of individuals may be available from certain vendors.

And our goal here today is to introduce you to some options for accessing labor market information data and to help inform continued improvement of your TechHire program through the use of labor market information data.

So just a quick overview of today's agenda. You'll hear an overview of labor market information and the strengths and limitations of these data up first, and then we will be highlighting strategies to determine in-demand jobs with a focus on the methods used by states. And then we'll be hearing from Burning Glass Technologies who will offer insights into current trends in tech-based jobs with a focus on real-time job posting data.

And finally, we'll wrap it up with several specific strategies to apply labor market information and job posting data to support your TechHire project. Throughout today's webinar please feel free to use the chat box to submit questions at any time.

We'll take several minutes after each speaker presents to answer any questions on their specific presentation before moving into a broader question and answer discussion at the end of the presentation. And now, I will turn things over to Akeelah who is going to present the next polling question before we get started.

AKEELAH HARRELL: Thank you, Megan. What is your level of experience using labor market data and other relevant resources, such as real-time job postings? Choose the answer that best reflects you or your group. One, beginner. I'm new to LMI and rarely draw on these data to support my work. Two, intermediate. I have a basic understanding of LMI tools and concepts and draw on the data occasionally and/or when necessary. Three, advanced. I'm an experienced user of LMI data. I use both real-time resources and data from federal, state, and/or local sources regularly. Four, not sure. So we have a lot of intermediate. Some beginners. A lot of advanced. OK. All evenly. A couple more seconds. Let's see. OK. So we have various roles here. OK. Let's get started. I'm going to turn it over to Sara.

SARA LAMBACK: Great. Thank you so much, Akeelah. And I'd like to just briefly introduce our first speaker, Michael Wolf. Michael is, again, the division chief for Occupational Employment Projections at U.S. Bureau of Labor Statistics, and his presentation will provide a brief background on labor market information, drawing extensively on his expertise in the high-tech industry employment trends and occupational employment statistics more generally. Take it away, Michael.

MICHAEL WOLF: All right. Thank you. Happy to be here. I'm very excited to tell you about some of the data that we have available. My main goal here is not going to be providing you with the specific data that you will need but rather to give you a background on the types of data available and to help your understanding of how that data is produced, what its strengths are, and what some of the limitations are so that you can help identify the particular data that you will find most useful in supporting your programs.

So if you're looking at traditional labor market information data, which, again, is defined as the type of data which is produced by the federal government and by state government statistical agencies, it can tell us a lot of things about different occupations in the workforce in general. You can find out how many people work in an occupation.

You can get that for various geographical areas, so the country as a whole, for a particular state, or for even sub-state areas. It can tell you what average wages are. We know that certainly some occupations pay much more than others. Having a sense about which occupations are high paying, which occupations are lower paying, or what the average wages are in your particular geographical area is useful information in getting a better understanding of the workforce.

This data can also tell you how much occupations are projected to grow. So we have surveys which tell us about historical employment, and then we have models which tell us about projected future employment. And identifying occupations which are expected to grow rapidly is a good way to identify occupations where there's going to be demand for more workers.

It also tells you how many openings are expected for new workers. Growth is one important component of openings for new workers, but it's not the only source. A lot of workers change occupations. Workers are retiring and leaving the labor force entirely, and those are also creating opportunities for new workers to enter in that occupation. And LMI data can give you an idea about the number of openings which are expected due to all of these reasons.

LMI data can also tell you about the education, the knowledge, the skills, and the abilities that you need to work in any particular occupation. Obviously, many occupations have varying levels of education and different types of knowledge, skills, and abilities required for them. Identifying what the specific requirements are of any particular occupation but also identifying what similar occupations are based upon common areas of knowledge, skills, and abilities across occupations can be useful in helping to train workers of the future, depending on what their current knowledge, skills, and abilities are.

So that was a brief background of the types of information available. I'm going to go quickly into some example data that's available here just to highlight a couple of the types of comparisons you can do with the data and the types of things you can find out. So you can see here data for two occupations in particular, web developers and electrical engineering technicians.

This is data at both the national level, at the state level – I've chosen California as an example – and at the metropolitan area example with San Diego being the example. And you can see that at the national level there's a fair amount of similarity in these two occupations in terms of their employment levels and their wages, although they have very different growth rates and openings. And I think that's important to realize is that you're not going to get all occupations similar – being similar in all particular components of the occupation.

So an occupation of similar size may have different growth rates or different annual openings dependent on the characteristics of the occupation. And this occupation – these two occupations I've chosen particularly to highlight the differences between growth rates and annual openings.

You see significantly faster growth in web developers but significantly more openings for electrical engineering technicians, and that's primarily due to the demographics of the occupations. Web developers tend to be younger than engineering technicians. Therefore, even though they're growing rapidly, the electrical engineering technicians are going to create more opportunities due to retirement, which is why there are more annual openings for that occupation.

And then when you're comparing across geographic areas, you can see at the national level there's pretty good similarity in both employment and wages. When you get to California, employment is still similar, but you see the wages for web developers are higher than the wages for electrical engineering technician.

And then when you go to the metropolitan area as well, you realize that not everything is the same even within a particular state. In the San Diego metropolitan area, the wages are actually reversed where you have higher wages for electrical engineering technicians than you do for web developers.

So this is just to give you a sense about the types of data and the types of comparisons which you can look at and the types of things to be looking at when you're dealing with labor market information. Again, for some types of uses, the national data is going to be more relevant. For others you're going to want to look in your particular geographical area to get a sense about what the particular characteristics are.

Another example data that I wanted to provide are in-demand computer occupations. These projections that I'm showing here are national data, but similar data exists at the state and at the local level. And in this case here we're highlighting occupations that work in IT, and you can see that there are a few of the occupations that predominate in terms of annual openings that we're projecting.

Software developers who are involved in application development and computer systems analysts have by far the largest number of openings, and then you got software developers of systems software and computer programmers also contributing openings. And then you have certain other IT related occupations that are much smaller in terms of the number of openings that they're projected to provide over the next 10 years.

I think the other notable part about the data that I'm showing here is you can see the relationships between growth and replacement needs. As I talked about before, growth is important to identify changing occupations and a number of the computer occupations are relatively fast growing and therefore providing a large number of openings due to growth.

But even in these fast growing occupations, there are still a significant number of openings that result from replacement needs, which is workers who are currently employed in the occupation who are expected to leave the occupation and create opportunity for people to replace them.

And there's one occupation in particular that I've highlighted on this chart, computer programmers, where we actually see no openings due to growth but we still have a significant number of openings due to replacement needs. Computer programmers is a declining occupation, mainly due to changes in the types of skilled workers that the IT industry is looking for these days.

But even though it's not creating new jobs, there are still openings, replacement needs for workers to enter this occupation, and that means that even though the – you may want to look at fast growing occupations to identify areas in demand, there can be demand for even occupations which are declining.

So again, this is national data which I am only providing to give you a sense about the types of data and how you can interpret particular types of data that we have available. But now, again, I'm going to get into a little bit more about where this data comes from and what some of the strengths and limitations are.

So one of our main sources of labor market information is the occupational employment statistics survey, which is a joint program between the federal U.S. Bureau of Labor Statistics and state agencies to collect this data.

So if you have further questions about this type of data, you have resources available to you both at the national level and in your individual state. This is a survey of employers which gives us this data, and it's based upon a state unemployment insurance program is the universe for this particular survey.

And again, it's a survey program that's designed to be statistically representative by industry and area, and it's done specifically that way so that you can make the types of comparisons that we've done before where you can compare occupations within a particular geographical area, where you can compare occupations across states, or you can compare within a particular area how the different occupations compare with each other.

It's a very large sample, about 1.2 million business establishments, which is collected over a three-year period of time. And the reason it needs to be such a large sample is because it does provide data not only at the national level but at the state and at the local level, and in order to get that level of detail, you really need a large sample. So it's a large undertaking, and it provides a great deal of data available on occupations.

A little bit more about the OES data. We've seen the employment data that it provides. It also has the wage data. On the prior slide we were looking at average wages, but in addition to that the OES provides percentile wages. And the reason why you may be interested in percentile wages is because not all workers earn the average.

There are workers who earn below the median at the 10th and 25th percentile and then workers who are the high earners within an occupation at the 75th and the 90th percentile. And it's important to have this data to get a better picture for what the total wage distribution across an occupation is.

So particularly if you have a worker who's getting started in an occupation, they're probably not going to be earning the average right away. So getting an idea about what the 10th to the 25th percentile is might give you a better idea about what an entry-level salary for a worker might be. The OES provides relative standard errors for all of its estimates, which gives you a sense of the reliability of the estimate.

And in most occupations we're providing both hourly and annual wages, and the annual wages are based on a full-time schedule. Again, that's to make the types of comparisons that we've been doing more reliable because you don't want to be – certain occupations have different work schedules in terms of how many hours a person will work per week or how many months of the year a person works. And the way the data is calculated allows for comparisons which don't overweight those types of differences.

The data available from the OES is for 580 local geographic areas, including every state in the nation. So those 580 areas, the number of areas is going to vary by state. They're primarily going to be large metropolitan statistical areas, but then it also covers non-metropolitan areas within states as well. It provides data for industry.

So if you're interested in the data for an occupation not across all industries but you want to know, say, the number of web developers who are employed in, say, the insurance industry or something like that, you can get that data from the OES.

It gives 430 specific industries in addition to the national cross-industry data, and then it also has data on ownership which is particularly useful in the health and education spheres where we can get differentiated data for, say, public and private education, for public colleges versus private colleges, and then for hospitals which are publicly run versus privately run hospitals.

So that's a little bit about the OES which is one of our main sources of data on occupations, and it's really the foundation for a lot of our other programs which is why I covered it first in a little bit more detail.

The employment projections are based on the OES data. The OES is providing the historical data, and then the employment projections really project forward as to what's going to happen in the future. They're produced as 10-year projections and then released every two years So the current available projection data cover 2014 to 2024. The 2016 to 2026 projections are going to be released in actually this October.

So just a little under two months from now that new data will be available. It's released first at the national level, and then the individual states produce the state level and the area level projections. So those will come out a little bit later. That's the national data which is coming out this October.

It covers, again, the same number of occupations as OES, over 800 occupations and just over 300 industries, and it's projections of both employment change, which is the growth and the decline numbers that we saw earlier, as well as total openings, which includes the replacement needs that we talked about earlier when we were looking about the IT occupations.

Employment projections and predictions of employment. We do not produce any projections of wages, but the OES gives you the current employment and the current wages, and then the projections which are available from BLS at the national level and then from individual states for state and local projections give you an idea about a future employment at an occupational level.

The next type of occupational data that I want to touch on is data on education, skills, knowledge, and abilities, and that comes from a survey program called O\*NET. The O\*NET has a very large amount of data available on occupations.

The little diagram that I have up here describes some of the types of data available. In addition to the knowledge, skills, and abilities that I've talked about, it gives information on experience requirements to enter an occupation in terms of on-the-job training or work experience that you need to get into it. It also has a great deal of characteristics of jobs available.

So if you want to know specific types of activities which are performed on a job or the interest areas associated with a job, the type of data which exists in O\*NET. I'm only going to provide a brief example of some of the types of data only because O\*NET is such a large data set that I can't possibly cover everything that it has.

But just to give a couple of examples of the data available for, in this case, web developers again, you can see that it has details on the knowledge requirements for working in this occupation. So in this case the occupation requires knowledge of both computers and the English language. It goes into skills requirements, in this case web developers require both programming skills and critical thinking, and I've only chosen the top two examples because there are more knowledge, skills, and abilities available than just these here.

I'm only trying to give an example of the type and the detail level of the data that's available through O\*NET. The abilities data and the technology skills data available. Again, this is available for every occupation that we have data for the OES is available in O\*NET, and it has really a wealth of data on the characteristics of the occupation which you can then use in conjunction with the data on employment to get a sense of how many jobs there are and what the requirements for those types of jobs are.

Again, this has really only been a very high-level overview of the types of data available as labor market information. So I'm going to summarize some of the strengths of this data. The LMI data is comprehensive. It covers all sectors of the economy. It covers all occupations. So we talked about some of the IT occupations in particular, but we have data on agriculture occupations.

We have data on manufacturing, finance occupations. Really the whole economy is covered here, and it's designed to be comparable. So we have consistent and comparable data for all of these sectors. It uses robust, statistically rigorous, and transparent methods. I talked a little bit only about the size of the survey.

I didn't really get into much about how it's selected, but the methodology is transparent, if you are interested in more information about it, but it's a very robust methodology which allows us to collect this data and allows us to make the types of comparisons that we've been doing here. And it also provides consistent data, and that's very important for comparing across geographies.

You want to be able to compare – if you want to compare two different geographies, you want to make sure that the data is comparable. And when it's coming from a single survey like from the OES or from a single employment projections program which uses consistent methodology across states, you need that in order to be confident about making those types of comparisons.

It allows comparisons across time. The OES is not designed to make year-to-year comparisons, but you can go back in time further than three years to get comparisons about how wages have changed or how employment has changed. And LMI data is also consistent across surveys.

So when we were talking about occupations, the same information is available on the same defined occupation from all of these data sets, from the OES, from the employment projections, from the O\*NET. You know that you're looking at the same workers, if they're employed in the same occupation, because these surveys all use a consistent taxonomy for occupations, and that allows you to be confident that you're looking at the same types of workers when you're making these comparisons.

Now, there are some limitations to labor market information for sure. There is a time lag between the collection and publication of data, which is inevitable. We're surveying data that is current when it's being collected, but there's time to compile and to synthesize the data and, therefore, a lag between when we collect the data and when we're able to publish the data.

The fact that – again, I talked about there's a strength in that we're using established taxonomy to allow you to make consistent comparisons, but because we are using established taxonomy, that means there's sometimes limited information on new or emerging occupations that requires an occupation to be established and to show up in all of the various data programs before you can make these types of comparisons.

And if you're really targeting a new or emerging occupation, that means there's going to be less information available. And again, another limitation is that as you get into smaller geographical areas and smaller occupations, there's generally less data available, and the data which is available tends to be less reliable. So in all of our survey and data programs, there are some data elements which will not be releasable due to unreliability or insufficient sample from the survey, and the finer you try and cut this data, the less data will be available.

Again, the OES data that I talked about before is a very large sample, and it's designed to be able to capture occupations at very small geographical areas. But when you get into a small occupation in a small geographic are, even that large of a sample is sometimes not enough to get data for every occupation, but there's really – if you look at the OES, there are millions of data elements available.

If you look at the O\*NET, there are millions of data elements available. So there's certainly no shortage of data, but there are obviously going to be particular areas where you don't have as much data as others.

So again, that's sort of the background information on labor market information that I wanted to provide here, and I believe we're going to have questions at this point. So I'm happy to answer any.

MS. BAIRD: Great. Thank you. And it definitely looks like we've got some grantees pointing out some of the limitations you just mentioned. A grantee is talking about looking at O\*NET. However, their primary issue is that it's very limited data for their local area.

So they were using a nearby comparison which is a rough comparison. So it's not exact but some of the things you mentioned and it's good to see that some of the grantees are using O\*NET.

If you'd like to type in any questions in the chat function right now for Michael, we'll go ahead and have a couple of minutes to address them. We've got two in here already, and if it's something that we'll cover later on or we run out of time, we'll hold onto those questions for later on.

One of the questions relates to what are the entry-level positions that could be identified for those with little experience and require more on-the-job training versus formal education?

MR. WOLF: Sure. So I think the O\*NET data is probably going to be a very good source to look at for identifying those types of occupations because, again, the O\*NET captures both formal education, on-the-job training, and work experience requirements for an occupation. So it's very easy to go in and identify occupations which have low formal education requirements but have on-the-job training requirements, if you're interested in identifying those types of occupations in particular.

MS. BAIRD: Great. Another question, "How do you distinguish computer programming from software developers or web developers?"

MR. WOLF: So yeah. There are a few different occupations which I talked about related to IT which overlap a little bit in people's minds. The computer programmers versus the software developers is one clear example.

The computer programmers tend to be the lower skilled workers where they're more basically given a particular problem and instructed to create the computer code for it, whereas the software developers are sort of the -- (inaudible) -- who are more coming up with the solution to the problem.

So basically, the computer programmer, the solution's been identified and they just need to convert it into code versus a software developer is doing both the higher level activity of identifying the solution and then often will be doing coding themselves. But there is some overlap because software developers do do computer programming as well, but basically, the skill level is higher for the software developers is how we distinguish those two occupations.

MS. BAIRD: OK. And there's another question here that we're going to hold until later on because I think we're going to address some of it, and it may be something that both Michael and Stephen want to respond to later on in the presentation. And with that you will still have lots of opportunities to answer more questions. So please don't stop sending them in as you continue to think. I will turn things back over to Akeelah.

MS. HARRELL: Thank you, Megan. Next polling question. Which of the following types of LMI data have you used to support your TechHire project? One, occupational trends, two, industry trends or projections, three, real-time job posting data, four, skills data from O\*NET, and five, other. Please describe.

Go ahead and – OK. Occupational trends. Industry trends or projections. Lots of occupational trends. Skills data from O\*NET. Great. Couple more seconds. Let's see. Definitely industry trends and projections as well. OK. Thank you. And I continue. Going to pass it over to Sara.

MS. LAMBACK: With that I'd like to introduce our next speaker, Rebecca Rust, who, again, serves as assistant commissioner over the Office of Occupational Statistics and Employment Projections within the U.S. Bureau of Labor Statistics.

Rebecca's background with both BLS and as chief of Board of Bureau of Labor Market Statistics has provided her with really extensive knowledge of the methods and strategies that states use to understand in-demand jobs and deep insights into the benefits and trade-offs of various types of LMI and real-time data. Over to you, Rebecca.

REBECCA RUST: OK. Thank you. So I'm going to be talking about how states determine jobs in demand. This really came about because of some questions from the Employment and Training Administration, believe it or not, that were – a regional office was having questions that they sent to both BLS and the national office and wanted to know what are states doing to measure jobs in demand.

And we really know the purpose of all of this, which is certainly what all of you are working on. It's now to improve that alignment between education and training and those hiring demands of business.

OK. So now, on the next slide we're going to look at some characteristics of methods used by states to determine jobs in demand, and it was really nice to see the poll that you just took that so many of you – thank goodness – are using occupational and industry trends, which comes from the projections programs that the states produce.

So these first three bullets on this page and then the next two on the following page – just stay on this page – are all showing the fastest growing occupations looking at the employment projections programs. And there's another of – a number of thresholds that you can apply to fastest growing. And I'm not going to go through these on all the other indicators, but on this one I will.

You can look at fastest growing by a certain percent greater than average, and the state can determine that or a local area. You can look at fastest growing by a specific wage. You only want a wage of a certain threshold for the fastest growing. You could look at fastest growing by the number of new jobs that it equates to because sometimes you could have the fastest growing that are very small occupational categories and aren't many jobs.

The next slide, the first two bullets are still on the fastest growing. It could be a targeted industry sector that your state or local area is trying to promote employment, and then also it could be a specific education and training level. So it could be the fastest growing for jobs that require high school degrees, the fastest growing that require another postsecondary level.

Then we can go on to the highest number of job openings, and Michael just talked about that. What's important about job openings is that it shows replacement need. So you can have an industry that's not high growth, but because it may have a lot of older workers, it's going to have training needs. So this one's very important.

Also for states or local areas that aren't showing growth in terms of new jobs, replacement is very important. Also, you can look at a threshold of having just the highest number of jobs. These thresholds can go on any of these levels. OK.

The next slide is we're looking at alternative data sources. So what we've already been talking about so far are employment projections programs. Now, we can look at alternative data sources that you might want to use. Some states are doing vacancy surveys or skill gap surveys where they can look at what are the unmet hiring needs of their local employers. And then online job ads, and that's one of our main subjects of this webinar is real-time labor market information or online job ads.

Now, most of – we actually found in our survey of states almost three-quarters of all the states are using online ads to help determine jobs in demand, and that could be from their own job bank that their state has developed or from the vendors that many of the states are using for their job matching purposes. So you can look at the fastest growing online ads. You could look at the highest number of online ads.

You could look at what ads are reposted, meaning those might be the jobs that employers are having the most difficulty fulfilling. Also, some states do supply and demand analysis, and in that case they can look at the largest gap between supply and demand. And then lastly, there's just customized training. It's just when an employer comes in maybe to a workforce development board and just says, I have a hiring need, and I need assistance with training. So it's customized.

And why is all of this important? It's really, again, trying to improve this alignment to help improve the labor market overall with higher placements, improved reemployment, higher standards of living. We can lower our UI costs and welfare costs and so forth.

So next, I'm going to transition into a little bit more information on real-time labor market information or the online ads, and that will transition into our next speaker. And how do we define real-time LMI? That in the early years there was a lot of controversies on really what is real-time LMI, and shouldn't all LMI be real-time? And really it should not.

I mean, real-time means data that are continuously updated in real time, which really could be hourly or daily. So we would not do an unemployment rate on an hourly basis that because of this large samples that we use for traditional LMI, having real-time is not related to that type of data analysis. So generally, also real-time is from web scraping technology.

On the next slide we can look at this as really these – real-time or online job ads can be considered a short-term demand indicator whereas the states all have their long-term projections that Michael discussed that go out 10 years. The online job ads could be current jobs that are in demand. So these can be de-duplicated by the vendors because these online ads, when they do web scraping, are going to show up in many different places. So vendors do de-duplicate the ads.

This technology really started back in 2005 with the Conference Board out of New York City because they used to do the online – they used to do the classified ads in the newspapers, and when those started to decline due to online ads, then they switched over to looking at online ads. So they started with this process first, but they weren't a job matching system like most of the states or all the states have now.

They were trying to develop an economic indicator. Online ads are considered supplemental to traditional labor market information, and we feel it's important to use both sources. They're not really a substitute for each other. And certainly, it can show demand at the national, state, and local level and available every month. In fact, it could be available.

As you can see on the next slide, the benefits are the currency. It can be updated in some systems even hourly is how often you can look at what are the jobs most in demand online. It's geographically comprehensive and gets down to customized local areas. One difference compared to traditional LMI is that it's not an estimate from a sample. It's actual posted openings. They can be a leading indicator.

When you look at online ads compared to changes in employment, it looks like online ads start to improve before the employment counts go up and vice versa. Pulling out of a downturn those ads are leading employment gain. We can get new and emerging occupations by using job titles that come into the job ads, and they're useful for keyword search where you can go into the ads and search for current words that relate to the jobs you're looking for. When we were big into the green jobs, you could put in green and every job ad that had green in it. Of course you got a few interesting things.

Next slide is related to a recession. The real-time data is very important during – especially during a recession because traditional labor market information are not going to show increases or gains in employment. You can have most of your industries in decline, and this is where looking at the online ads will show the churn in the job market.

So you can still see that even industries in decline still have job ads that they're advertising. So this is a considerable amount of help during a recession. And I just mentioned manufacturing was an example. When it was in severe decline, there still were hiring needs going up, as in other industries. So it's catching that churn.

Next, I'll mention just a few caveats of real-time. Certainly, it's not the same rigorous statistical methods as traditional labor statistics use, but, again, it's still very useful. We need to – as long as you realize the limitations of data, then it can still be used for your analysis. Not all jobs are advertised on the internet, whereas Michael mentioned or our projections were covering all industries, all occupations. If you're looking at scraping the internet, you're going to get just what's put up there by the employer community.

So some entry-level jobs are not as broadly represented. Some high-end jobs, some industries are not as prevalent on online ads. Another issue is that some employers are resume fishing in the sense they post an ad and they just want to see what's out there. They may or may not really be hiring at that current time. Some ads could still be duplicated because even though that deduplication process takes place, it's not a perfect science.

And another issue is one job may actually cover multiple openings, meaning they just post one but they really may have 50 and they're just going to see who applies for the one. And employers may be recruiting out of area. That's a problem with some of the smaller – if you're – it's a non-metro area and employers may be trying to draw workers from that area for a job but the job posting is really not in that area.

And next, I'm just showing a quick example of what a listing of online ads in rank order can look like. This is for the state of Florida using Conference Board data de-duplicated, and it's just showing for the month of July what are the jobs with the most online ads. And of course it shows nurses at the top, which has traditionally been at the top of most demand lists, and they're also very much at the top of our traditional LMI demand list.

But when you look at this listing, there's a few in healthcare, but actually, there's quite a few in the IT area. Computer user support specialist, software developer, systems – computer systems analyst, network administrator, and web developer are all in this top online list. And something similar is available from most of the vendors that do job matching and web scraping, and this is sort of a good lead in to some of the services provided by our next presenter, Burning Glass. And that completes my comments.

MS. LAMBACK: Thank you so much, Rebecca, and we'll let Megan lead the next portion of Q and A before we move on to our next presenter.

MS. BAIRD: Great. And I did want to point out the chart that Rebecca just showed, if you all were able to read it, many of the occupations you are targeting are on this high demand occupation list. So you may be seeing some of the things on here in real life, and you may be able to use online ads to kind of identify in your local area related to the occupation you're training for.

OK. If you have any questions on Rebecca's presentation, please feel free to enter them into the chat function. I see we have quite a few folks networking with each other. I see Erin facilitating some peer networking around strategies that folks are using and sharing some other resources. That is really great to see.

If you can scroll up on the question list to see – we've got some questions for later on in the presentation. OK. We will continue to move on to the next section or topic, and, again, we're going to hold some of the questions that came in for after Stephen's presentation. And feel free to continue to type into the chat function. I will turn things over to Sara again.

MS. LAMBACK: Thank you, Megan. And with that I'd like to welcome our third panelist, Steve Lynch, again, director of Workforce and Economic Development Solutions for Burning Glass International. Steve's presentation will showcase how together LMI and real-time data can provide unique insights into the trends in technology careers, especially those skills required within these occupations.

The data that Steve will share has been drawn from Burning Glass Technologies, which, as Megan mentioned earlier, is just one of a number of vendors that package and – that package labor market and real-time data. Thanks so much, and take it away, Steve.

STEPHEN LYNCH: Thanks. So yes. And for those of you that don't know Burning Glass, we are a software company at heart that focuses on labor market data and analytics. So we see our primary calling as tracking and mapping the genome of jobs, and when I say that, when we think about human genome project, it was the idea of can we better understand the DNA and miniscule elements that make up what becomes all the different various life forms on earth?

We're doing that with jobs, trying to understand at more of a DNA or a chromosomal level what makes a job tick. And so we're looking at things like skills and competencies and experience and credentials to get there and really understand there are identifiable characteristics that make a job what it is.

And what Burning Glass tells us is we observe those factors and characteristics by going beneath the occupational title level, and it enables us to identify what we might call sub-occupations and distinctions within jobs across industries, across geographies, across specific companies, et cetera.

For the TechHire community, a quick example would be help desk jobs is what they will commonly be referred to by employers or by jobseekers. It would fall under I guess the sock for computer user support specialist, but under that occupational title or computer user support specialist, we see a whole range of differences in the roles, from roles where somebody is essentially being asked to support a desktop user versus upper-level application specialists who really need to have some advanced programming skills like Java or SQL.

Similarly, software developers, if you just approach the job at an occupational title level, a lot can get missed in the translation to the way employers or jobseekers might think about the job and certainly how it's signaled by employers to jobseekers through ads what they're looking for.

As I mentioned, I work for a software company, and we haven't indicated that we're looking to hire a quote, unquote, "software developer" as far as I can tell, in about a decade. It's always much more specific. So there's a lot to unpack here, and this is a – just a quick overview of how we do what we do because there are numerous "vendors" of labor – real-time labor market data.

Approaches in what we're doing is actually very different. It can run the spectrum from a firm that essentially just takes the great work that's done by the states and rolled up and created and curated by BLS OES data and repackage and crosswalk that.

What we're doing is we also very much believe that you need to use real-time labor market data in conjunction with public – (inaudible) –data and statistics to maximize value and impact and to really support what you're trying to achieve. We have a proprietary process in what we're doing where we're actually generating our own data set, not just leveraging what's publicly out there and assigning it to the other.

To an earlier point, and I can reiterate this later, where our data availability is not just, OK, we aggregated some postings and here's some data and there are no estimates. We actually do modeling as well and have both pure real-time data that you can access from the aggregated data and be able to mine that and also more curated data sets that actually take into account some of the spots where simply grabbing job ads online might not tell you the full picture.

So how we do it, basically, there's a number of groups out there that are doing survey-based data generation and traditional labor market information methodologies, and their work is extremely important, particularly for macroeconomic insights. What's happening at Burning Glass is we're harnessing insights from what we think of as the currency of the job market. So job ads and also resumes.

Because of the nature of our operations, we see literally hundreds of millions of resumes through our work with HR and staffing firms and private companies. And so we gather insights from that as well as a massive operation to aggregate online job ads, rigorously de-duplicate them, and remove things that aren't really job ads but company masquerading as a job ad, what you might call a "employment opportunity" and screening out that and any inappropriate content and then tagging and coding the data and making it minable and searchable to answer questions that people in the training provider community, the jobseeker community, the employer community, our three key stakeholder groups, have to answer supply and demand questions in a way that is granular, specific, local, current, and actionable.

So you can see here a basic picture of the methodology, and we're creating taxonomies around the data that I'd be happy to speak with at more length this week. Move along.

Important take away in understanding the value of the type of data that we generate is that jobs are changing and rapidly in many instances. And I'm going to talk today about something that we refer to as hybridization of jobs or roles, and this is really a skill incompetency story.

Much can be missed if we only think about trying to understand jobs through the lens of occupational titles or categories because in reality we're seeing exponential growth in employers that are looking for talent that has skillsets that used to exist in completely different job domains. And I'll give you an example of that in a moment.

For the TechHire community what's important to know is tech skills are not just required for tech jobs as we knew or labeled them in the past. Employers want talent with tech skills and also other skills that were previously in different job domains, be it sales or finance or marketing or what have you.

And this has important implications in understanding your training. Could be opportunities for individuals that develop the skills in your trainings. I mean, a great example is 15 percent of jobs currently requiring robotic skills – this is looking at the past 12 months – are actually in healthcare now, and we've seen a 300-some-odd percent increase in demand for doctors and nurses that have robotic skills because of the rise in robotic surgery.

Not necessarily intuitively where people would have thought robotic skill demand would lie, if you just made the assumption that it went with electrical engineers like maybe five years ago.

So here I'm going to try to distinguish between a linear genome job and what I referred to earlier as a hybrid genome job, and I've been asked to clarify for you that this example here of a welder is simply shown as an example for me to explain the concept of a linear genome job. I don't throw this up there to say here's the launch pad for a TechHire career.

This is not a pathway conversation yet. This is simply an example of a linear genome job. What makes it that is, if you look at the skills that are required in here – I will punish the people that created my slides for still using soft skills as opposed to common employability or 21st century or whatever you want to call them.

At Burning Glass we typically call them baseline or foundational skills, but you can see skills specific to welding as an occupation and also some of the baseline skills. But when you read the list, it makes sense how they all fit together. There's a commonality where we see a lot of welding methodologies or use of tools or things related to the role of welding as it's typically understood. We see how these skills fit together.

Let's go ahead and contrast that with a hybrid genome. Now, here the example is a data scientist and it helps you see the complexity of understanding jobs as hybridization occurs and it really poses a challenge for educators and training providers and it also impacts jobseekers and employers as well.

Here the skills required are from different domains – programming, business skills, data science, visualization, and then soft skills emphasizing presentation and writing. In the past you maybe would find these skills lying in three to four different workers, but today increasingly we see employers looking for a cross-trained individual that has this bundle of skills. And that's a tough challenge for a training system to adapt to and to sort of turn the shift to address this phenomena of hybridization.

Another great example would be mobile app developers in the tech space because a mobile app developer, when you look at what they need to do, they have to be programmers. They have to be user interface, user experience designers. They need to be marketing mavens, and they need to be content experts. And traditionally, these aren't things that trained together, and that's also a great example because it's a role that absolutely did not exist at all 10 years ago.

And so on top of hybridization there's a whole range of other topics that, if time allowed, I'd love to dive into like the future of work and the interest in automation risk and some of the figures these looked into where middle-skill jobs that don't emphasize or require a digital skill component, roughly 75 percent of them are at risk of automation over the next 20 years based on analysis using the methodology firm at Oxford report from a few years ago and some additional analytics by Burning Glass. But when we take into account what we are observing happening, the key message here is jobs are changing. We need to start to ask the questions of how do we adapt and deal with that.

So this is just to show a more localized example of where the real-time labor market data and this looking through the lens of skills can help emphasize the need to have localized information. It's not a one-size-fits-all approach when you're trying to solve for demand. It varies by geography, even within the same industry and even within the same occupation. So also varies by employers in the same geography.

A great example was Nevada. You tracked our data and looked at the top skills for mechanical engineers at Tesla versus GM, and there's significant variation where Tesla it's a lot of emphasis on product development, design, 3-D modeling, and at GM it was a lot of electrical and systems engineering roles.

And that might get missed if you just were to rely on a higher level national set of KSAs or knowledge, skills, and aptitudes or abilities for a broad occupational category, and it may make it more difficult for you to move the needle locally in being responsive to your employers. So it's – this is examples of the types of insights you can garner by tapping into the real-time LMI.

Again, here is another example. The last one looked at skills; this one looks at roles. So looking at three different markets within California and where is the relative length by posting volume as an indicator of demand for these four different occupations. And you can see pretty quickly there's a substantial difference where a computer user support specialist may be the top dog in one or two markets but relatively far down the list in another. So it's understanding that local characteristics of the labor market.

And I often say one of the greatest benefits that people can gain from the real-time LMI is really trying to better understand what are the pain points in a local or regional economy and for specific employers as well. And so here we're looking at time to fill data based on average posting duration to get indicia that a potential gap might exist.

If I see that it's taking 71 days on average to fill a product manager job in Miami and I'm active in the training community down there, I'm going to want to know why. So immediately, I want to ask what's going on, and that's where you have to dive deeper into the data. And fortunately, there's a lot of tools and data that can help you answer questions like, is this a largely supply or localized training infrastructure issue, or is there maybe a phenomenon of credentialing?

Earlier I talked about help desk roles. Well, about 30 percent of help desk postings request a bachelor's degree, but when we looked under the hood and peeled back those jobs, the 30 percent requiring a BA or beyond versus the 70 percent that require sub-BA credentials, what were the skills and the competencies that employers were requesting.

And they were – (inaudible) –near-identical when you looked at the top 10 list. There was actually only two that varied where it was Microsoft skills were emphasized in the sub-BA roles in the top 10 and not in the BA or beyond; in the BA or beyond had VPN skills. The rest of them were essentially the same, though maybe slightly jostled in the rankings.

But that really raises an interesting issue of why are employers requesting a bachelor's degree if the skills that they're asking for are typically skills developed in the sub-BA level training program?

And that enables you to change demand and have a more meaningful engagement with employers, especially when you carrot with intelligence that lets them know that on average, when they do this and ask for the BA or beyond for a role that essentially requires the same skills, they're looking at an $11,000 salary premium and about 15 percent longer in terms of time to fill for that role.

So here I know there's some questions around how do we begin to address this as training provider community. And one of the things I'll make clear is your resources are not unlimited, which I'm sure you're not learning for the first time from me on this webinar. It becomes imperative with limited resources to focus on things that you can train for and where there is quantifiable demand and projected growth and even better if you can tap into some indicia of an employer pain point so that you're addressing a localized need.

You're establishing that this is something that's in demand, and here this is a visualization of how we're approaching identifying these. You look at the categories. Disrupters are disrupters because they have a high time and cost to hire, a strong need for new training programs – (inaudible) – high risk as well – (inaudible) – for that – (inaudible) –high time and cost to hire – (inaudible) – positive versus the negative – (inaudible).

MS. CASERTANO: Hi. Steve?

MR. LYNCH: Yeah.

MS. CASERTANO: Can you hear me? We're just having a little bit of issue with your audio all of a sudden. Did something change or –

MR. LYNCH: I can hear you fine.

MS. CASERTANO: Oh, you sound much better now.

MR. LYNCH: OK.

MS. CASERTANO: So if you want to just back it up a minute, we didn't really understand what you were saying.

MR. LYNCH: Oh, OK. So for the – well, just on the slide that we're on?

MS. CASERTANO: Yeah. Yeah. On this slide. It was the last, like, 20 seconds.

MR. LYNCH: Oh, OK. So the quick recap here is we're trying to help – with the data help you tap into identifying the real best bet opportunities to address either for – to do this for occupations. We can do this for skills.

We can do this for credentials to try to find those things that have an impact on time and cost to hire and a strong need for new training programs and that post a high risk or moderate risk or low risk to future productivity for employers to try to identify what those best bet elements for new program development. Yeah. Happy to come back to that more fully in the Q&A.

So here I'm mentioning Waze for careers. For those of you that aren't familiar with Waze, it's an application. Many of you may have it on your phone. I certainly have been using it more and more recently. It's essentially an app that helps people to find a quicker way to get from point A to point B when driving a car and hopefully probably with less stress as well as a result.

And I bring this up to say that's essentially what we're doing, what Burning Glass tries to do, but we're trying to do it in terms of helping people navigate the job market, not the roads. And so few people realize the extent to which they already participate in data science and analytics. For anybody on the webinar that has a cell phone, your cell phone's not just a phone.

It's also a sensor, and what Waze does is it gathers a lot of data, not just from public maps of where the roads are and potential routes but also from user experiences and interactions and being able to track where they are and where they move.

So similarly, with our data we're trying to tap in and through analyzing how employers signal the market about what they want plus traditional labor market data as well as analysis from resumes of how people made real-world career transitions, how they moved from one job to another, to another, not just how do we assume one might move.

We're trying to take all of these data points together to create a map that shows what are the sequential skill and/or credential gains that somebody needs to move from one role to another. Here is a health informatic pathway, but we've done these across industries and sectors and the ability to build – how do you move from being a computer user support specialist or a help desk role to a network administration database management role on up the chain and with information that can be local and specific and actionable?

So here, as I say, show them what they need. So this is just a snapshot from one of our tools called Job Pulse, and it's looking at help desk technician analyst roles in Orlando, Florida. But one of the keys I like to emphasize is not everybody who is going to need data to make good decisions wants to become a data analyst. So information has to be digestible, and it has to speak to the questions that people have.

So here, if I identify a role, you may notice there's a spot on the right that says what are the core skills and certifications and what are the booster skills and certifications. This is can you quickly pull out for me what is the stuff that I need to have to be job ready, the core skills and certifications and the things most requested by employers.

But then can we also leverage the data in the analytics to say we've also identified booster skills and certifications and there's a nice little color-coded piece to this that indicates here are things that, if you add them – as an employer, if you add this as a requirement, the analytics show that it can impact your time or cost to fill the position.

The person who's the jobseeker or the counselor that's helping advise them, these are the things that you want to add to that core skill profile that you absolutely need. If you add the boosters, you're going to be more marketable, and you may get hired more quickly and can I call out whether it's a skill or a certification and make people aware of that?

Similarly, where can I go? Same tool. Same market, Orlando, Florida, but this time I looked through the lens of a specific tech skill, SQL. And so what we can do is analyze the underlying skill requirements across all of the roles and occupations employers in the market are hiring for and say, if you've got this skill, what are the jobs where that skill is most in play?

And can I compare them and see which are in higher or lower demand? Which are taking longer to fill? What are the salaries? That basic info I need to know to say, hey, I've got this particular skill profile. What roles might I be feasible of attaining that would never necessarily have occurred to me?

Because the beauty here is by approaching these questions through the lens of skills as opposed to just occupational titles or through the lens of industry, you're going to open up or uncover opportunities that may truly lie across industries. And that I think is really one of the critical stories for TechHire grantees to think about that I mentioned earlier. Tech talent and people with tech skills are in demand in multiple industries, whether or not it's one of your primary or intuitive targets.

Finally, round out. So here is what a lot of people usually hope to find, a map based on analysis of postings, looking at top IT skills, highest paying skills, fastest growing skills, hardest to fill skills.

This is really important within the TechHire space because your folks will take on jobs hopefully both within traditional occupations and roles and also in I guess what I would refer to as the non-traditional, often referred to as the gigantotomy where skill acquisition and the ability to specifically demonstrate your competencies becomes absolutely critical networking skills because the ability to thrive in a gig economy where somebody may change roles or affiliations or who they work for many, many times really requires a kind of skill profile and the ability to convey it to somebody else.

The other take away I want you to have here, as I mentioned before, jobs are changing, and the solutions need to be local, timely, granular, and specific. So this chart is probably very interesting and helpful for you on high but it's not going to solve all of the challenges that you face as a training provider community until you actually localize it and it will change.

So one of my recommendations is to think about how do you tap into the various labor market data sources and use them as part of your ongoing operational procedures and culture, not just as a point in time solution where two or three or four times a year you look in and get some data. It's really how do we tap into this and think more deeply about it? When I look at a chart like this, I could be overwhelmed if I wanted to think about, well, how do I deal with this to create a training program?

But if I step back, I can say, OK, well, there's a lot of things here that fall under the banner of data science skills and some new ones will certainly emerge in the next three months and there will be a rise and fall in the relative importance. But can I teach or train to the fact that I'm seeing ever-increasing demand across industries and sectors for people with ASI and skills?

The story of this demand picture really shows that kind of danger I was pointing to earlier of staying too mired at an occupational title level. An example is in 2016 postings for the occupational title of data scientist went up 5 percent. Overall postings for the occupational title of data engineer actually went down 2 percent, but that's not where the story lies.

The story lies in the fact that demand for workers with data – (inaudible) –skills was significantly up across industries and sectors, everything from a 17 percent growth in looking for talent with machine running skills, 31 percent growth in requests for talent with data visualization skills, on up to 54 percent growth in demand for workers with clinical data analysis skills.

So really unpacking that and seeing where that demand falls within finance and healthcare and advanced manufacturing and elsewhere is the relevant story that I think real-time labor market data provides great insights for. So with that happy to answer any questions.

MS. BAIRD: Thanks, Steve. And I did want to say I want to make sure we get to your questions, and we've got about 10 minutes left.

So, Stephen, if you can be brief in your responses but also we do want to get other folks started too on a open-ended polling question while we're also walking through some of the follow-up questions. So if you could be typing questions in the chat or responding to this polling question, we're interested in hearing from you.

The specific polling question is on the screen. The BLS listing of methods used to determine jobs in demand was collected from a survey of state LMI shops. Are you using any additional methods to determine in-demand tech jobs that were not already addressed?

And do you have different methods that you have used to stay up to date on labor market information to support your TechHire grant? And I know that some of you have been sharing this. We saw some LinkedIn resources referenced in the chat function. So if there is anything else you're using, we'd love to hear from you, and I think your fellow grantees would as well.

And while you're typing that in, Stephen, we've got a few minutes to turn over some questions to you. One of the ones we saw come up several times is a clarification on you used a different terminology for soft skills. Could you say again what that terminology is that Burning Glass uses?

MR. LYNCH: Yeah. So in our tools we've labeled them as baseline skills most commonly. We've also at times referred to them as foundational skills. There are a lot of terms that go to I guess what was more universally known in the past as soft skills, and then people said, well, that sort of cheapens the value.

They're not soft, and it is true. They're actually of great importance. I think the take away here is we have a sense of what these are, and there is substantial demand where employers are emphasizing soft skills. One of the unique things we notice in job ads sometimes to a degree that exceeds what the occupational profiles develop fairly – would suggest should be developed as importance of specific soft skills in certain roles.

What that tells us is that they matter to employers enough that they're emphasizing them, particularly if they're emphasizing them in paid job ads that they have to buy and pay for all the content that they enter.

What we do with that is unpack it across the roles, and we actually have found – and I have some publicly available data on our website that soft skills vary significantly across different industries and sectors and roles. And typically, the soft skills that an employer will tend to emphasize, what we notice is they're not things that are typically included in traditional training programs for certain roles.

So if you're talking about somebody who works as a clerk in a hotel, as part of hospitality and management training there's a lot of problem solving and customer facing soft skills that are traditionally part of the training, but we'd see an emphasis in things that maybe would be less so dealt with traditionally like certain mathematics or digital production, office productivity software skills being requested.

And similarly, we've seen a lot of emphasis in roles within the tech community where you expect people to have a fair amount of proficiency with some of the mathematics-related skills, a real emphasis on creativity and the ability to work in teams or to express your work in writing and things that maybe were less emphasized in traditional trainings.

MS. BAIRD: Great. And I think we have time for one more question, if you can answer this in 30 seconds or less to make sure we cover some remaining slides. We did get a question on using O\*NET to get details about credentials relevant to each IT application, but it could be bewildering in number and a variety of credentials and that training resources are limited. So it's difficult to narrow down training to a few core credentials. So do you have a quick response for any –

MR. LYNCH: Yeah. Yeah. The quick response is this is a great question, and it's a huge issue. When – obviously, we can see the credentials that employers request in job ads, and since everybody's chasing industry-recognized credentials, whether or not the employers who make up the industry actually ask for it is usually a pretty good indicator whether or not something's industry-recognized.

But there's a real challenge, particularly for people that want to develop a new credential and how do you grow a market uptake there? We've found just sort of simple numbers that when you looked at credential, certification, licensure demand across all roles nationally, it's over 80 percent are requesting one of the top 200 credentials, and on down the line it's 67 percent request actually 1 of 50 credentials.

So there's data that can shed light on that, but we're also doing some exciting things now looking specifically at the topic of credentials. Where can we identify areas where there's just a supply shortage, meaning there's a lot of employers requesting a recognized credential, but the job is still hard to fill. So that shows that maybe there's some supply shortage.

But the next issue that's really useful for training providers, can I find areas where a role is under-credentialed, meaning that there's not a lot of employers asking for a specific credential and they're struggling to fill the role, which could indicate here's a real opportunity to develop something because all a credential is is something that's going to serve as evidence to the employer that the person who holds it has what they're looking for? And so we found specific examples around DSA jobs, digital –

MS. BAIRD: Sorry to interrupt you, Steve, but we do need to wrap up. I'll give you a few seconds for your last thought on this. I want to make sure that we are able to end on time.

MR. LYNCH: Sure. Yeah. I just – I didn't want to leave people without an actual take away. So DSA, the digital science and analytics jobs and web and mobile development were two specifically identified areas where there's a lot of room and opportunity for the creation of a meaningful credential that doesn't exist.

MS. BAIRD: Great. Thank you. And I definitely think I'm going to turn things over to Sara for our last few slides and to maybe also touch on continuing the conversation. Sara?

MS. LAMBACK: Great. Thank you so much, Megan, and I know we are really tight on time. So I will keep this really brief, but in this last couple moments I wanted to just kind of highlight coming out of these great presentations from our three panelists, you all have seen that LMI is an incredibly powerful tool that has many applications in TechHire and in your TechHire program to really foster continuous improvement and refinement.

I'll provide a couple of examples in the next couple of minutes, but, as Megan mentioned just a moment ago, please let your coaches know if this is a conversation that you want to continue and follow up with any of the presenters or panelists to kind of individually or on the CoP in order to keep this conversation going after today.

So Steve and others have kind of highlighted the fact that LMI and other data can really provide incredibly useful insights into program design, curricula content. It can help foster employer engagement and identify specific employers to really target for those efforts. They can also help you refine your programming to ensure that it aligns with employer demands and really reflect what those demands are. Some of you may already be using LMI also to provide participants with updated information on – (inaudible) – salary data and other relevant criteria as they enter into the job market so they understand really well what those opportunities are.

These examples here will be posted on the CoP for you all to look at in a little bit more detail, but here's just one example of how you can do a skills audit and really dig down in the extent to which your programs align with employer demand.

So this just shows, based on some real-time posting data, one potential framework that you can use to examine the skills that are currently taught within your training programs and then flag the extent to which they align with those that are in demand from employers based on some real-time data.

Labor market information can also be a really helpful tool to identify employers for potential partnerships, whether that's within formal – (inaudible) – strategies or even to gain employers to participate on advisory boards or target them for more informal engagement.

So there are a couple of examples of the types of searches that you can do as you're trying to identify and then target employers for those engagements, but think about casting a wide net and really thinking at a broad range geographically who those employers might be and identifying them using some of the labor market data. And in particular, real-time data can be useful for that.

For those of you who are in rural areas, you might find that sometimes looking at nationwide trends and employers who have postings for things like telecommuting opportunities can be a really useful way to find those employers who are maybe not geographically located in close proximity but who are looking for individuals with the relevant – with the training and/or experience that you're providing.

The last example is just very briefly just one way that you can use data and labor – and real-time labor market information to kind of facilitate strategic communication with current or potential partners.

Often data can just help kind of jumpstart a conversation to bring employers or other potential stakeholders on board and also just helps round that conversation to ensure that you're speaking about common workforce challenges and able to kind of segue into a more solutions-oriented discussion.

So this example was drawn from some work in Florida. So you'll see some very Florida manufacturing sector specific data points here, but in our experience this has been a really great way to help, again, bring different stakeholders to the table and really facilitate a more meaningful discussion around workforce challenges and needs.

And I think in the interest of time we will move through this polling question right here, and I'll turn it back to Megan in case we want to address any kind of – I know we're really close with time, but in case we want to address any last-minute questions before wrapping.

MS. BAIRD: Thanks, Sara. I think we're going to move ahead, but to let you know, you can please keep on typing questions into the chat field. Some of our subject matter experts are able to stay a little bit later and to respond. I see Stephen's responding to some of the questions as well. So thank you for that.

And also to utilize the CoP, which is certainly a location you can continue the conversation there as well as with your technical assistance coach. I'll turn it back to you, Sara. You want to touch base on some of the resource links that were referenced today?

MS. LAMBACK: Absolutely. So you'll find ones right here in the slide deck and also posted on the CoP for the O\*NET site Bright Outlook Occupations. Also, there is a great WorkforceGPS resource, LMI Central, which has just a huge range of different resources related to labor market information.

And then kind of building off of Steve's presentation, there's an excellent Burning Glass report on hybrid jobs and how business and technology skills are merging to create high opportunity hybrid jobs that I think coming off of his presentation you'll find to be especially useful and valuable.

For our TechHire grantees, just giving you a quick snapshot of what our TA activities will look like moving into the fall. Please stay tuned for announcements on our September and October peer learning group discussions. We're excited to be holding our TechHire Virtual Institute in November.

More details on all of those will be forthcoming very soon, and please keep – (inaudible) –as well to your coaches for the individualized monthly coaching with them. So with that I would like to, again, of course encourage you all to continue this conversation with your coaches. Let them know if this is a topic around which you'd like additional TA and also of course to engage on our TechHire Community of Practice and with the TA team.

I know Akeelah is ready here for our last polling question of the webinar. Thank you for those of you who are sticking around for an extra minute or so to complete that and for the close out. Akeelah?

MS. HARRELL: Thank you, Sara. So how do you feel about today's webinar? I see we have people who are excited about these data and other resources to our TechHire project. 25 percent LMI what? We still have a few more questions. Please feel free to type in those questions in the chat box. A little overwhelmed but excited. Once again, please feel free to continue asking us questions and follow up with your TA coach. And I'm going to turn it back over to Megan.

MS. BAIRD: Thank you, Akeelah, and on behalf of the Department of Labor TechHire team, we wanted to thank our four panelists for joining us, sharing their insights and expertise. And in addition, thank you to you all for your participation in this webinar, your thoughtful questions and comments, and your honest answers to our polling questions. We did want to make sure that you had the contact information for our panelists today.

Again, Sara mentioned as well, if you would like to continue this conversation, please definitely reach out to your technical assistance coach. It seems like there was a great disbursement of where you felt after today's webinar in your understanding and grasp of LMI data.

And with that, before I turn it over, we have, again, the panelist contact information is on the screen today. It's in the PowerPoint. As always, you can contact TechHire at TechHire@dol.gov as well as your federal project officer.

And thank you for joining us again today, and I'll turn it back over to Laura to close us out.

(END)