**Public Sector Future podcast**

**Episode 49 – Tech Saving Lives: Transforming Emergency Response**

**Olivia Neal (host), Dan Munsey (guest)**

[Music.]

**OLIVIA NEAL:** Hello and welcome to Public Sector Future. This is a show for anyone who cares about using digital approaches in the public sector to deliver better outcomes. I’m your host, Olivia Neal, and together we explore stories from around the world, where public servants have been successful at delivering change. Throughout the series we discuss technology and trends, as well as the culture aspects of how to make change happen.

I’m joined today by Dan Munsey, Fire Chief of San Bernardino County Fire Department in California, and Chair of the International Association of Fire Chiefs Technology Council.

Chief Munsey has almost three decades of experience in the Fire Service, and we’re going to be discussing how he sees the role of technology in operations, and what leaders can do to set themselves and their organizations up for success.

**OLIVIA NEAL:** Chief Munsey, thank you so much for joining us today.

**DAN MUNSEY:** Thank you for having me.

**OLIVIA NEAL:** To get started, we’ve got quite an international audience for this podcast, people from Europe, Australia, all over the world. Could you help us out by giving us a little bit of context on San Bernardino, and how large an area are we talking about, how many people do you serve, what type of geography are you operating in?

**DAN MUNSEY:** You know, Europeans and Australians tend to be a little more sophisticated than us. We use miles not kilometers, so I may need someone to interpret, but we cover almost 20,000 square miles, which in perspective is the largest county in the United States. You could literally take, I think, the five small states in our union and put it within our borders. It’s super interesting to work in this county because it’s very diverse with this geography.

We have urban city environments within our valley areas, which transitions into foothills. We have a large wildland urban interface, and then up into mountains that are, well, almost 12,000 feet above sea level, so.

On the other side of that, we have our California deserts, just absolutely beautiful, the Mojave Desert, and our borders go all the way out to the state of Nevada and follow the Colorado River down. The very popular Lake Havasu is within our jurisdiction, and so those areas can be extremely hot, 118 degrees in the summer.

What’s funny is, actually in the mountain areas, we can have avalanches and be using snow cats to rescue people. At the same time, our firefighters can be along the Colorado River fighting a wildland fire in over 100 degrees heat. And so this large expanse, the different geography, the diversity of the population, the people, really make service delivery interesting.

[02:55]

**OLIVIA NEAL:** So that’s a huge range of different capabilities that you have, but I think that 20,000 square miles is bigger than Switzerland, so– that is a huge area that you’re operating in there.

**DAN MUNSEY:** Right, it’s probably not quite as pretty as Switzerland, but it’s got to be close in some of our mountain areas and lakes. It can be very difficult to provide service in a county this large. In an urban environment, we’re able to space our fire stations apart, generally every five to six minutes.

but as you go out to the more geographical sparce areas, then you start having problems with the fire stations over an hour apart, maybe even two hours in certain locations.

You may be with a three-person engine crew and be asked to perform extraordinary acts that would normally take 20 to 30 firefighters to accomplish, so our firefighters do a wonderful job.

Now, we are an all-hazard fire department. I mentioned some of those hazards. I mentioned the avalanches, certainly ice rescue and snow rescue. Wildland I mentioned. We are a technical rescue fire department. We provide all of those services.

We do aircraft rescue firefighting on the San Bernardino National Airport. We have paramedics on every single one of our medic engines as well as our truck companies. We deploy squads and we also have ambulances in a large portion of our service area. Besides that all-risk nature, we tend to use technology quite a bit. So it’s a fun operating area. There’s lots of challenges, figuratively and actual fires.

We – our firefighters are never bored, and neither am I.

[04:46]

**OLIVIA NEAL:** You first became a firefighter around 25 years ago, does that sound about right?

**DAN MUNSEY:** In 1995, yes, it’s a good story. I dropped out of high school and became a rock climber at beautiful Joshua Tree. I was rock-climbing and my friend fell and broke his back, and I decided I better get some first aid training, so I went to a local college, took my GED and took the EMT course they were offering. I did a ride-out with the fire department and I immediately knew what my heart was, and I pursued a career from there.

**OLIVIA NEAL:** For you, how has digital transformation and technology become an area of interest and an area of focus over that time? What is it that’s really triggered that, that passion for you?

[05:05]

**DAN MUNSEY:** Well, it’s been several events. I think the first is I grew up in a fire service that used pen and paper and radios for command and control, but you don’t really have a good situational awareness of the forces around you or who is doing what. We lacked sometimes the clarity and mission, and while we were good with pencil and paper and radios, about 10 years ago, we realized we could be better by adopting different operating systems.

We were using actual computers, mobile data computers, MDCs, in our fire engines there, very rudimentary systems. We employed ADL, Automatic Vehicle Locating, rather quickly , as – as soon as it was available, but having ADL and having a map isn’t the same as having a true common operating picture, so we – we adopted Tablet Command back then, that allowed us to understand our calls better and be able to discuss with the dispatchers the nature of the emergency better to be able to have better interagency operability and cooperation, and then having the mapping ability to display our units better in relationship to the actual emergency.

And then, in addition to that, it allowed us to use our Instant Command System in a more abundant way to be able to actually make assignments over that common operating picture so every firefighter could immediately see what are the overall objectives, what are the tactics you need to deploy, how is the incident organized, what is the progress?

From there, we were doing this as our own fire department, again rather big, but we were not doing it in cooperation with our neighbors. So we discussed with our neighbors a regional deployment and deployed that common operating picture across our entire operating area to many departments, and that just made us even better.

Since then, we’ve adopted common preplan systems. We use other common operating pictures to be able to integrate and operate better with each other. And then lately we’ve been working with the state of California in creating a statewide common operating picture that will be able to display all the emergencies in California, simultaneously, regardless of scope or scale and be able to display the automatic vehicle locating, the status of these incidents, and be able to provide real-time imagery back to the firefighters.

So it’s been a tremendous journey over the last couple of years when it comes to operational technology that’s deployed to allow the fire department to operate more efficiently, more organized and in a safer manner to provide a better service to our customers.

[07:53]

**OLIVIA NEAL:** I’m curious to know, as you’ve gone through, leading some of that digital transformation and instruction of technology over the past few years, are there any lessons that you’ve learned as you’ve been doing those things, anything that now you’re working increasingly with other fire departments and with neighbors where you think actually there’s foundations people should be putting in place now to get results ready for technology adoption?

**DAN MUNSEY:** Adoption in the fire service is an interesting subject, and I think a lot of fire chiefs and leaders believe that if they buy the technology and then demonstrate it once to the organization that it will be adopted, and so there’s a lot of failures there, or incomplete adoption of technology.

And that’s where the leadership needs to be involved, and it’s more than just showing the technology to the organization, and it’s more than just finding champions or super-users for this technology to demonstrate the benefit. It’s more than celebrating the wins and saying, "Great job, use this technology." It’s more than that. Adopting technology at a point in time is great, but what about the future?

And so to answer your question, what we’re doing right now is we’re talking about where are we going to be in 10 years as a public service or fire service? We couldn’t have imagined being here 10 years ago, where we are at today. We have clues on where we’re going to be tomorrow, and I think if you ask the younger generation of firefighters, they’ll be able to articulate a lot quicker than somebody with 28 years on the job with where we’re going to be tomorrow. People of my age group tend to look at virtual reality as almost a toy—it’s a videogame—but the newer generation recognizes what kind of tool virtual reality, augmented reality and mixed reality is going to be and be essentials for their job.

And so when you start talking about some of this technology and where we’re going in the future, by the way, most of which we could start using today, but when you start talking about the future in 10 years, most fire chiefs are disbelieving, or they think, "Oh, well, okay, somewhere down the line I’m going to automatically be able to adopt this."

Well, there are four pillars that need to be considered in every organization for the future technology, and those four pillars for me are, first, you need to change the culture within the organization. You have to have a vision of where you’re going.

In San Bernardino County we’ve adopted a technology plan. We’ve literally worked with futurists and say, "Where are we going to be in 10 years?" We’ve met with Microsoft and say, "Where are we going to be in 10 years," so we can visualize how our operations are going to change.

The second thing we realized is that we need to train the workforce to use this technology, but we want technology to be very simple, one button, and it does magical things for you. The reality is – is that you do need to educate your workforce on how to use it, how to repair it, how to maintain it, how to use it so you have full adoption.

The third pillar that we’ve recognized is that the technology is going to exist in the future. We may not have the backbone or the infrastructure in place to adopt that technology. And so what infrastructure should we be putting in place today? And part of that is examining the legacy technology that every agency has.

And so it’s identifying those legacies and along with that final pillar of identifying the legacies is realizing that you don’t need to come up with new money for the adoption of technology. And I think there’s – that’s an excuse for a lot of fire service leaders that point, and they say, "Well, that’s too expensive." Well, yes, but when you buy a new fire engine you don’t typically keep your old fire engine, and every fire engine you’ve had since the 1900s, you surplus those out. You no longer maintain those fire engines at some point.

Are we doing that with legacy technology, and I don’t think that we’re evaluating legacy technology like we do with some of our other tools, so by eliminating some of this legacy technology it allows you to have a budget to adopt new technologies.

So those four pillars that I just discussed, this change in the culture and providing vision of where you’ll go in the future, training the workforce to be able to meet the needs, to be able to operate that technology.

The third pillar is creating that backbone or the infrastructure that’s required to support the technology in the future. The fourth is examining your budgets for legacy technology, eliminating that legacy, and reimagining your budgets instead of trying to come up with new dollars for technology.

[12:35]

**OLIVIA NEAL:** That’s really clear. Thank you for setting that up in such a nice easy-to-understand four buckets of activity. And I think what’s interesting about those four themes is that, running through those, you have the push and the belief that you can change, and you have to change.

You can challenge the status quo, whether that be in terms of the technology you have, but as you said, also the legacy processes, the legacy ways of working and some of the legacy skills. It’s all about being able to say, right where you started, you have to be able to create a vision. You have to be able to visualize and articulate that to people so that they can come on that journey with you and understand where you’re going.

And it sounds like, for you, there is a role for younger firefighters to play in that, in helping make some of that change happen.

**DAN MUNSEY:** So I mentioned planning. We plan for the future. I think the worst thing this organization can do is find a bright, shiny new technology and then buy it, and then try to adopt it. Technology needs to fit a purpose. That purpose should be to achieve a vision. It needs to be driven by the vision, supported by the mission, and then the technology supports that vision and mission.

So younger firefighters drive the innovation in our agency, and as the leader I have great ideas on technology. I’m probably exposed to technology than most fire chiefs in my role as the International Association of Fire Chiefs chairperson, but what I know is that it’s – the last time I was on a fire engine, as a captain. The captain’s the rank that’s in charge of the fire apparatus in the United States.

The last time I did that was 2008, and so if I try to make decisions on what my needs were in 2008, I would do a really bad job at providing for the firefighters and captains of 2023. So what we’ve done is created an internal committee that looks at all aspects of the fire department from administration to operations. It’s composed of our vehicle mechanics. It’s composed of a secretary. It’s composed of our firefighters, our paramedics, chief officers, a very robust group.

And we started exposing these individuals to technology, and then we started asking them questions in their day-to-day job at how can we create better efficiencies, how can we create better safety, how can we create better operational control, using technology?

And so this group became very active, and they would go out and talk to their peers and they would get ideas and you would find them going to trade shows, and they would be evaluating technology, not to purchase that technology, but to understand the purpose of it and then come back and evaluate how does this support our mission? And so that’s allowed us to have a ground up to incorporate a lot of our younger firefighters who are extremely interested in adopting the technology.

Now, in the past – that’s kind of a legacy way of – it’s a very linear way of adopting technology. What we don’t want is the technology to drive the vision of the fire department. We want the vision of the fire department then to be supported by the technology. That’s the goal of these groups and our approach.

[15:55]

**OLIVIA NEAL:** That’s a really interesting set of internal influences and – and insights which can help inform your plan and inform that purposeful adoption of technology. And I’m interested, in the same way that you have younger firefighters who might generating new ideas and enthusiasm, and maybe have a different vision for how things can operate in the future, do you also found that, externally, the expectations of the over two million citizens that you’re serving in San Bernardino – do those expectations start to change? Does technology play a role in – in what people expect from you? Do they expect more real-time information, more interaction, more communication? Is that playing a part in how you have to change your vision?

**DAN MUNSEY:** Oh, absolutely. We have 360 degrees’ worth of stakeholders, and we have our internal stakeholders and our external stakeholders. We have three principles—we call them the three Cs—that are very important to us. Number one, we’re going to be great communicators to our stakeholders. Two, we’re going to be great collaborators with our stakeholders. And three, we’re going to be committed to our communities.

And so what does the public expect, the citizens expect? They expect real-time information that’s not necessarily on social media. They also expect legacy information to be quickly accessible to them.

And so, what we’re working on and what we’ve done is, in some instances, have created forward facing or public facing dashboards to provide some of this information back to the public. When it comes to emergency management, we’ve done that really well through our Office of Emergency Services. We’ve been able to create different apps, disaster, disaster apps that notify citizens of potential disasters, escape routes, where are we setting up different areas where the public can go to get services.

The public needs to be communicated to rapidly, but the challenge for us is that we don’t want to put out bad information. And so, in public government, often, the process is slowed way down as information is 100% vetted. And that doesn’t always sit well with the public. When they want an answer, they’ve been taught from the Internet that they’re able to get an answer within a couple of clicks. Why can’t I get the same answer from a public agency like a fire department? And if it’s taking so long to get an answer, what are they hiding?

So, it’s really important to us that we become very transparent in providing this information. Yet, at the same time, we recognize that you can’t give bad information, because if you fail at that once, you lose trust.

**OLIVIA NEAL:** So, there’s a fine balance to be had there.

[18:40]

**DAN MUNSEY:** And it’s, for our firefighters, with the adoption of technology, that exists as well, trust. If you put out a product for them to use, and it fails, no matter how good that product was or the reason why it failed, they will never use that product again, in an emergency environment. You have to make sure that you’re deploying your technology in a way where you ensure that it’s failsafe, that they can trust their lives, and the lives of their crew and the lives of the public on this technology.

OLIVIA NEAL: One of the areas you’ve touched on a lot is the importance of working across boundaries. Is there an example of how you’re looking at doing that, working with other Fire Services?

[19:25]

**DAN MUNSEY:** We identified common problems through our association or fire service associations, so, through the International Association of Fire Chiefs Tech Council. What’s amazed me is that across the United States, people have very common problems that we tend to think is unique only to our own organization. That’s not true.

Take California. We tend to think the California Fire Service does rather well at answering a lot of these problems. But as you engage in the conversations, especially with some of the technology leaders like Microsoft, you realize that sometimes, we don’t fully understand our problems, nor do we understand some of the opportunities that exist today to resolve these problems. So, let me give you one example.

I think every agency, public safety agency in the world uses a computer-aided dispatch system. They may call it something different, but it’s a CAD, is the nickname here. And what it is, is literally a server that stores information driven by our 911 calls, our emergency service calls. And in that CAD, we store information, like some of our GIS and our mapping, premise history, previous calls, and then we put our response data in there as well.

I think, that quickly opens up people’s eyes is if you start with this question. You say, hey, your most sensitive files that you’re working on at work, do you save those onto your hard drive on your computer? And most people, most professionals will say, no, you know, maybe one or two go on my hard drive, but no, I use the cloud. Who doesn’t use the cloud, Chief? That’s crazy. No, I want to be able to pick up my smart device, my smartphone, and immediately use it to access the paper that I was working on with my desktop or my laptop.

And then you say, oh, okay, yeah, exactly. And so, do we do that with our CAD systems? And then you see the realization dawn that CADs are nothing but servers, and the information is locked. And it’s not available on the cloud.

And so, as a fire department, as we started expanding our operational acuity, or common operating pictures between different agencies, we recognize that we needed to connect our CADs to their CADs. So, we’re simply connecting servers to servers.

If we think about our future, today, it’s difficult enough to store enough information in our CADs. We’re always upgrading our servers. But if you think about the amount of information, the Internet of Things, the data that’s out there that we want as public safety professionals, it’s tremendous. And can we store all this data on a server? The answer is no, not easily.

When we talk about 3D modeling of buildings in your jurisdiction, right now, all new buildings in my jurisdiction, they’re not submitting paper plans. They’re submitting 3D twins, digital twins of the building. And he’s digital twins are going into a depository that I have no access, as a fire service professional.

So, a lot of this information is either stored in somebody’s server somewhere down in a basement or it’s destroyed at some point, or they’re printed out. But that’s an example of information that we need to be able to access, as public safety professionals, when we need it, and very quickly across multiple devices.

More importantly, I don’t just need those buildings in my jurisdiction. If San Francisco were to have another earthquake, and our rescue team responded to San Francisco, they need to have access to this digital twins of these buildings so that we can do our modeling. Where are we going to find our victims? How many people… what are the floors designed for? How many people can we anticipate to be on different floors? Where are the exits?

There’s a whole bunch of questions that we cannot answer today.

And so, when we first met with Microsoft in the California Fire Service community, we brought this problem to them. And they said, “Well, yeah, it makes sense to create a public safety cloud. And yes, you can store all the information that’s currently on your CAD systems. And yes, you can store all the information from your building departments. And yes, you can start collecting the Internet of Things, these data points that exist.

“But more importantly, we can aggregate that data, so it makes sense. And then using artificial intelligence and machine learning, then we can provide it back to you as information.”

Remember, data is not information. Data needs to be interpreted, but having a human go through this data, interpreting information can take a long time. But if you’re relying on these corporations, like Microsoft, that has the ability to do that quickly, then you’re creating something that’s very actionable and usable.

And so, this idea that we’re scoring across California, we recognize that there’s other areas across the world that are starting to view this. To me, this is limitless. There’s no reason why a firefighter in Germany shouldn’t be able to immediately come here to the United States, and have the same information that my firefighters have.

[24:33]

**OLIVIA NEAL:** You’ve talked throughout this conversation very clearly about the ways in which you are approaching implementing adoption of technology and driving digital transformation. You’ve talked about building a culture and a vision, training the workforce, doing those things like having champions and super users, building those internal communities, getting feedback from staff who are directly using these types of technologies. You’ve talked about building the right infrastructure and the right backbone for adopting technology, and then finding the ways to identify funding sources and phasing out old legacy approaches and technologies to create that space for new adoption.

So, I think there’s an awful lot there for people to really think about and get their teeth into. But for anybody who is listening, who wanted to start replicating some of the – the work that you’ve been doing, wanted to start thinking about embedding more technology into their work, is there anything else you’d recommend in terms of where to get started, how to get going on their digital transformation?

**DAN MUNSEY:** I’ve been absolutely blessed to have fallen into a technology world that I didn’t know existed. Six years ago, I wasn’t very familiar with technology. I was familiar with the technology that we used, and I had a fortuitous visit to Esri. And through that, that collaboration, we were able to design a technology summit for the California Fire Service.

And the idea was, is that fire chiefs, we’re not quite aware of the technology that exists today. We have no idea what technology is going to be in the future. We’re scared to adopt technology, because if we adopt it, is it going to be supported in the future? And if I adopt a technology, am I going to have interoperability with my neighbor jurisdiction that does something different?

And so, our goal was to create a summit where we can answer those questions.

And that engagement in a summit – it wasn’t a conference, it was a summit – allowed the fire service to expand their knowledge base and their visions of the future. Since then, that’s been repeated a few times. The International Association of Fire Chiefs now does it with Technology Summit International.

So, the first way that I would start is I would look for a public safety summit to go to. The safety in the summit is that you’re going to hear a lot about technology that’s out there from the providers, You’re going to be able to evaluate what they’re saying without having the sales pressure.

Two, go to the wrong meetings. As fire service professionals, we tend to go to meetings with other fire service professionals. We look inside the fire service for our answers. Go meet with your public works, your road departments, your law enforcement and see what they’re doing. And I think we would be surprised by the variety of products that are out there, the variety of ideas that could coexist in our world that we just weren’t aware of.

Three, don’t be afraid to call anybody. Call me; look me up on LinkedIn, send me a message, ask questions. Be willing to say, I don’t know. Can you tell me where we’re going with the XYZ tracking of firefighters? Where are we going with augmented reality or mixed reality? Where do you see heads-up displays and – and fire service helmets? How are we going to display building information modeling or 3D modeling? How’s LIDAR going to change our world? What are the effective ways of using drones?

So, make those calls. Look for associations and coalitions that are leading the way in some of this technology and reach out to them. Ask to be on their newsletters. Look it up on the Internet. And then dream big.

Do consider, in your own organization, setting up a technology committee, but ask them to do more than just evaluate current technology. Ask them to evaluate the organization and to be exposed of where we’re going to be in 10 years. And then ask them. Ask them the four pillars that I mentioned.

What culture do we need to change internally? What vision do we need to put out there, okay, to change the culture? What is the legacy technology that we’ve adopted that we’re not just not going to need, but we can phase out over the next 10 years? What’s the training that we’re going to need to do with our workforce to prepare the organization? And finally, what is the infrastructure that needs to be in place? But ask your employees for that.

As a leader, I give bold vision. I give the 50,000-foot level vision is what we call it here, but I allow them to work on the lower level, the 10,000-foot vision, I want to make sure that I give them a broad objective, and then see what they come back with. They know their jobs better than I know their jobs. They know their needs better than I can anticipate their needs.

[29:31]

**OLIVIA NEAL:** Those are very tangible pieces for people to take away. And I think the theme that’s really coming through that for me, as well, is looking up, looking out, looking for connections, looking outside of your direct day-to-day work to people in other areas, other fire departments, to industry, to colleagues around the world, and keeping that open mind, and coming back to that role as a leader, as you said earlier, to be purposeful, to be courageous, and to be bold.

And I really appreciate you spending the time with us to share your lessons and your learnings, because I think hearing this firsthand from somebody like you is – it’s just the inspiration that people need to get them going. And I think we’ve covered an awful lot today, but is there anything that I haven’t asked you which you would like to share?

**DAN MUNSEY:** We have to create a bolder vision than we have today, than what brought us here today. And so, recently, I was meeting with the council. And I expressed a vision that my whole career, I’ve been told my whole career that we need to keep wildfires 10 acres or less. And that’s our goal 90% of the time, 90th percentile, 10 acres less.

And I said, “That’s a vision that we achieved. That – that vision was around in the 1900s. But today, with all this technology, you’re telling me that that’s what we’re going to measure ourselves against, still? We need to set a broader goal. And so, what I recommend is that we keep wildfires 10 square feet or less.” And they asked me, “How do you do that?” “Well, it’s early detection. It’s early response. It’s early control wildfire, followed by boots on the ground.” And they said, “Well, how do you do that?” And so, I expressed how to do that with technology and using UAS as impressions and early detection.

Have a broad, big goal, but have a plan on how to get there. And as you express this plan, you’re going to find like-minded people that want to help you achieve this goal. And in this way, the industry can now drive technology.

Leaders need to have a broader vision, rethink everything that we’re doing, set bigger goals, and then meet with your technology leaders and say, I don’t know how to do this, but I know that we can do this better.

**OLIVIA NEAL:** That’s such an interesting angle, and one I’m sure that many people haven’t explored to this extent. Thank you for your boldness and thank you for the eloquence that you’ve had in your answers today. It’s been a really fascinating conversation. Thank you so much for your time.

**DAN MUNSEY:** Thank you.

[Music.]

**OLIVIA NEAL:** Thank you to our guest, Fire Chief Dan Munsey, and thank you to you for joining me today on Public Sector Future. Our goal is for you to learn something new and to be inspired to think differently about your journey. Check out our show page to links to all of what we discussed today. And visit us at wwps.microsoft.com to find more Public Safety and Justice inspiration and material. Thank you and see you next time.

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