

BI Radio

Episode 31 – (BIR 31, Smarter Cities)

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Station ID: This is BI Radio

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Montage:

- We were ranked fifth most violent city in the U.S. Not a title we were proud to have, and we never want to have it again.
- More people are living in cities than ever before, and the cities need to be smarter in order to react to some of these changes.
- And obviously this is not only good for the environment, it's good for congestion, and it's good for the overall quality of life for everyone, including people's health.

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Ken Seeley: Hi there, and welcome to BI Radio. I'm Ken Seeley. On the show today, building smarter cities with business analytics. We look at the increasing demands placed on urban infrastructures and opportunities in analytics to improve our quality of life. We'll hear how predictive analytics and proactive policing helped Richmond, Virginia drop from the fifth most violent city in the United States to the 99th. And our own Don Campbell looks at how officials and citizens alike can benefit from the deluge of data. But first up, Jon Desenberg from the Performance Institute explains how analytics are driving remarkable transformations in city governance and improvements we can all expect.

Sherry McPhail: Hi, I'm Sherry McPhail with IBM. Between now and 2020 some major global changes are headed our way. Demographics will shift dramatically. Social stability will come under threat, and a global 24/7 interaction will simply be expected. So says the IBM Government 2020 report which urges governments to start preparing for the six big drivers of change. In this podcast, Jon Desenberg of the Performance Institute in Washington, D.C. shares his views and stories on how public-sector organizations, many of them cities, are already using analytics to get ahead of these changes.

Sherry McPhail: Well, thanks very much for joining me today, Jon.

Jon Desenberg: It's great to be here, Sherry.

Sherry McPhail: Now let's start by getting you to talk a little bit about your vision for governments in 2020. What are some of the realistic expectations for government accountability and efficiency in 10 years?

Jon Desenberg: Well you know, government accountability and transparency has never been such a hot topic. It's just the combination of open government and accountability. And the theory is that a more open government will lead to almost kind of a crowd surfing or sourcing methodology where people and citizens will be able to help the government identify new methods, new techniques and find efficiencies. And the theory is if you put more data out there and more information out there for all Americans – and I think this is true throughout governments worldwide – we can really benefit from citizens examining the data and really giving us some of their expertise. So that's the theory, and we're already starting to see it happen. There's an amazing website that we've had running here for a little over a year now called data.gov, and the government agencies in the U.S. are putting lots of interesting data and data sets at a real detailed level up there. And citizens are able then to manipulate that data and use that data in a way that the government has never thought of. So this is really the new era in transparency.

Sherry McPhail: And what are some of the most interesting things that citizens are doing with this open data?

Jon Desenberg: We're really looking at people taking a real business intelligence perspective and an analytical perspective on government data, looking for, for instance, patterns because government-wide really, the field of statistics and analytics is becoming one of the hottest fields in government, which is how do we understand really the data deluge that is occurring? How do we sift through what data matters and what data doesn't matter and really look for key information? So that's the challenge for government, but we know that with the amount of data that's available we need more eyes on that data.

Sherry McPhail: With federal departments and agencies necessarily becoming more accountable for outcomes and being transparent from top to bottom, what can performance dashboards and portals help them do?

Jon Desenberg: Well, I think it's fascinating what's happening here. The White House just has an unbelievable focus on dashboards. There's going to be a new dashboard coming up here this summer called performance.gov, and it really has a dual purpose. Number one, of course transparency to citizens and accountability to citizens. So people can start to get a better feeling in quantifiable terms what are we getting for our money? How is our government doing? And where do we stack up perhaps against other countries, which is something that really has never been thought about before. There was very little quantifiable data. So when people went to vote or when people gave feedback to their elected leadership, they didn't have that quantifiable data, and now they will start to have more of that, which I think is just a huge development. The other thing that something like performance.gov is going to allow agencies to do is begin to benchmark because you share many things in common. For instance, you share the ability and the task of delivering benefits to people or perhaps sending a cheque to a citizen or electronic

transfer of payments. And so one of the things that we're starting to see with dashboards is the ability to look at cross-cutting measures, to take a look at what agencies and what organizations are really doing the best work in some of these common areas. And then of course the ultimate goal is to share strategies that are effective and to really kind of have a race to the top, as President Obama talks about. The other thing I'd like to talk about just briefly is a new piece of legislation that was passed here in the United States just several weeks ago. It's going to develop a national list of indicators. So again, we're going to have kind of a top 25 what indicators really matter. So there are a lot of developments in score-carding and dash-boarding. Another area that you could take a look at is the new IT dashboard, government-wide IT dashboard that's allowing agencies to get a better look at what IT projects are on time and on budget, which really is a lot of money if you look at it in the aggregate. Shining a light on that through a dashboard is going to be I think a major step forward and we've already seen a lot of interest. The President himself spent some time looking at the IT dashboard. So these are just a few examples of how powerful this is becoming. And really it's just a trend that is just going forward and is only going to get more critical.

Sherry McPhail: Now just touching on cities, maybe you could tell us a story or two of how cities are becoming more liveable, not just in terms of getting open data sets applied to citizens but in terms of park services, et cetera?

Jon Desenberg: Sure. We're working with one city in particular who really took a close look at a lot of the business intelligence and analytics that were coming out of their transportation program and took a look and really realized that the number of bicycling commuting had doubled in just the last five years. And many of the major roadways downtown were not being used by automobiles to the extent that they had been in the past or had been predicted. And what we did using analytics and really going through the data was made the decision to close off some of the lanes of traffic for automobiles and rededicate them to cyclists with a safe dedicated cycling lane. And it's really been an incredible success here just because we're able to open up those streets and look at the information now, and we're actually encouraging more and more people to get on their bike. And obviously this is not only good for the environment, it's good for congestion and it's good for the overall quality of life for everyone, including people's health. So that's one way that we've been able to really take analytics and make them come to life for citizens on a local level. And it's been quite amazing. The other interesting piece of the transportation sector in this particular city is their use of real-time analytics and the ability to transmit real-time information on bus service to everyone to their mobile devices. So you'll know exactly when the next bus is coming or the next train is coming, and that's again a way to get people out of their automobiles, get them to be more interested in public transportation and to rely on public transportation because they have more information. So what we really see at the Performance Institute is it's not just information for government, although that's great, but it's information for the citizens as well, and really freeing up that information and giving more people access to the data so they can make better decisions.

Sherry McPhail: Well thank you so much for your stories and insight today, Jon.

Jon Desenberg: Oh, it's been my pleasure, and I look forward to being with you again sometime soon.

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Sherry McPhail: Thanks for listening. To read more about IBM's analytic solutions for government, please visit ibm.com/cognos/government.

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Station ID: From business intelligence to business analytics and all points in between, this is BI Radio.

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Kelsey Howarth: Hi. I'm Kelsey Howarth. Critical to a smarter city is a safer one. Today you're going to listen in as I speak to Stephen Hollifield of the Richmond Police. Here he shares how the Richmond Police are using SPSS software to deploy officers where they're most needed and accelerate criminal investigations. You'll also hear how this proactive police presence has helped the City of Richmond experience a dramatic shift from the fifth most violent city in the U.S. to the 99th.

Kelsey Howarth: Hi, Stephen. Thank you for joining us. Could you tell us a little bit about the Richmond Police?

Stephen Hollifield: In terms of just overall size, we have approximately 750 sworn and 130 civilian personnel. In terms of just technologies that we currently have employed, our crime records are electronically captured through in-vehicle computers. We use dashboard video cameras. We also use strategically-placed video cameras across the city. We use 360-degree capture analysis to provide virtual 3D analysis of crime scenes. We also use GPS integrated in our vehicles for 911 dispatching, and that gives us the ability to facilitate the quickest officer response based on distance, road types, speed limits, things like that. We use analytical software for strategic and tactical analysis of crime trends, hot spots, social network analysis. And most of our systems we run on a highly redundant virtual platform.

Kelsey Howarth: And what were some of the central issues or pains your organization faced before investing in SPSS software?

Stephen Hollifield: Probably our biggest pain was the fact that we were ranked fifth most violent city in the U.S. Not a title we were proud to have and we never want to have it again. Most importantly though, our citizens did not feel safe in their own neighbourhoods, and that was a great concern to us. It was probably our largest issue that we were dealing with at the time. From an analysis perspective we had lots of data, well over 50 million records, but no reasonable means to make sense of it. Our statistical forecasting was really limited to linear perspectives, and we could look at one, maybe two data types together when attempting to isolate a trend or a hot spot. And the analysis was only available to a few personnel in our analysis division, and the distribution of that was rather cumbersome; it's email, paper reports, and you either had to be somewhere in the loop to get a hold of that analysis. If you weren't, then you were just out of luck.

Kelsey Howarth: From what I understand you first tested the system on one of your historically larger crime nights, New Year's Eve. Can you tell us about what happened that night?

Stephen Hollifield: Richmond has, as far as I know, a unique circumstance that on New Year's Eve quite a few number of citizens in Richmond feel the need to step outside and fire their guns off into the air. This obviously creates quite a bit of havoc for us in terms of getting overloaded in our 911 centre with calls for service for random gunfire. And for our purposes it's really being able to determine the difference between a citizen just firing his gun in the air versus an actual crime that's occurring and guns are being shot towards people. And what we had historically done in the past was basically nobody gets holiday, nobody gets the day off, everybody works. And we just flood the streets with officers. Not the most efficient and definitely not the most cost-efficient means of actually addressing the issue, but we didn't really have any way to know where to place cops to get the best effect. We did sort of a test project with SSPS analysis to look at all of the data that we had for the prior five years and determined based upon that how many officers we really needed to have deployed and where they needed to be. From that, we experienced on that one night a 49-per-cent reduction in random gunfire incidents. We had 246-per-cent increase in the number of weapons we had seized from prior New Year's Eve initiatives, and we saved about \$15,000 in overtime costs just during that one shift.

Kelsey Howarth: That's fantastic. In terms of outcomes, can you speak to some of the sort of new efficiencies, cost savings, better information or like that story, the overall ability to fight crime?

Stephen Hollifield: Well, the statistics are fairly clear. Last report I saw I think we were ranked 99th instead of fifth, which is, you know, we're almost off the 100 list, which is where we want to be. And we're continuing in that direction, so that's good. But the real measure in terms of what we look at is the response of our citizens. And there's a huge difference today versus just several years ago, back when we were dealing with this issue.

And our citizens will tell you that they feel safe in our city. And that's how we measure our success. As far as the efficiencies gained, we know through our own analysis that we do on a regular basis of deployment activities that we are continually keeping the officers in the right place at the right time, and that's driving the crime trends down.

Kelsey Howarth: Yes, you mentioned the savings of \$15,000 on New Year's Eve alone. Are there any other cost benefits like that one that you've experienced?

Stephen Hollifield: I think overtime costs are probably, for us it's always the core savings that we're looking at. I know that we've dramatically reduced I would say just in the last fiscal year, I'm pretty sure we've reduced our overtime costs by over 50 per cent in terms of a year-over-year basis. And that's... I don't know that we'll ever not have overtime just because we can never be completely staffed to the point where we have enough officers to cover every single incident. And you're always going to have things that are going to push time requirements beyond that. But we're definitely doing a much better job of managing it.

Kelsey Howarth: What are your future plans? Any lessons learned along the way?

Stephen Hollifield: The primary thing we learned is that you cannot really determine what the last end requirement is until you get something in front of it. When we started this off, we aggregated all violent crime together. And really what they needed was that violent crime broken into six types. We really wouldn't have known it just because it was so new to the officers at the time that they didn't even know what to ask for. Once we got the system in front of them and they began to use it, then they came back to us with that request first, and then they came back with more requests, and in terms of really honing in on what they needed from us. And that's kind of the next piece that we're working on right now, which is a seven- and thirty-day analysis. Although it's not going to give us anywhere near the high degree of probability that we can do with a four-hour window, it still gives them a good perspective in terms of strategically planning additional support services for the week ahead, for the month ahead, and understanding where they might need to change staffing, depending upon what the analysis is feeding them and telling them to expect.

Kelsey Howarth: Stephen, thank you so much for joining me and sharing your story.

Stephen Hollifield: Yes, no problem. Have a good day.

Kelsey Howarth: Okay.

Stephen Hollifield: Bye, bye.

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Station ID: Ideas, insights and opinions on business analytics. You're listening to BI Radio.

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Derek Schraner: Hello and welcome. My name is Derek Schraner. Recent years have seen tremendous growth in the business intelligence and business analytics communities. Organizations around the globe are interested in cost savings and growth. They're looking forward and adapting. In recent years IBM has presented a list of innovations with the potential to change how we live, work and play in the very near future, and it's called the Five in Five. To discuss the next Five in Five, I'm joined by Don Campbell, Chief Technology Officer, Business Analytics. We'll hear about the transformation ahead and how emerging technologies have the potential to make existing cities smarter.

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Don Campbell: Well, there are various aspects of how technology comes into play in a smarter planet. And one of the things that we've observed is how information is much more voluminous than it ever was before. We are collecting information at an incredible rate. The second informational challenge is in the variety of information. So information isn't just about the structured data that we've become accustomed to, but it's video and imagery and audio content, just like this podcast, unstructured data of all types. And the estimates are that perhaps 80 per cent of the data that we have to consume on a daily basis is really of these unstructured types. And the third area of focus is really around the velocity of decision-making. So we are presenting our business users and other information consumers with this massive problem of having all of this data and in all the varieties that it exists in and requiring them to make some kind of decisions out of it. So trying to enable these information consumers to be effective with this information is a very challenging task. And so it's gone well beyond the business user. We are faced with these kinds of challenges now in this new information age of ours, all throughout our life, and in every aspect of how we not only work, but how we live and how we play, because the world essentially is changing. The world itself is becoming much more instrumented. And we've never had such a free-flowing amount of information available to us as humans before. So there's great change in this technical space, and technology is really at the forefront of enabling these new opportunities for us. But of course with that comes a great amount of challenges as well too, and we have to step up to making those changes and taking on those challenges in order to harvest the value that this technology brings.

Derek Schraner: Okay, so we've spoken on sort of very grand levels. How does it affect a person at a smaller granular level?

Don Campbell: Well that's a really good question because some of these thoughts are big thoughts for sure. And yet we're all trying to live our lives with newer technologies and understand how they impact us. And one of the messages that IBM puts out is what we call the next Five in Five. And that is essentially describing the next big five technologies that will impact our lives in the next five years.

Derek Schraner: When you say the five technologies, is it a set five technologies? Is it five technologies that change from time to time?

Don Campbell: Every year we come up with what we believe is the next five big technologies and we talk about them in a way that's somewhat science fiction, perhaps unattainable, but...

Derek Schraner: Aspirational.

Don Campbell: Aspirational for sure. But in all cases they are very grounded in reality and they are the subject of many efforts. We're always working on the ones that we specify and have total confidence that as a planet we can get there in the next five years.

Derek Schraner: Can you specify the five that we're looking at?

Don Campbell: Sure. As we talked about smarter planets in the past, that's very, very grand in scale, but we all live and breathe inside of a much narrower focus. And when we look at the population and how it's growing and changing, what we see is massive trends towards urbanization. So more people are living in cities than ever before and the cities need to be smarter in order to react to some of these growing population changes. We know that there becomes more issues that it creates, and again, more opportunities for those cities to become smarter. So the next Five in Five this year is really around the infrastructures related to cities and how to make cities smarter. So the Five in Five for this year are, number one – and these are in no particular order – is cities will have a healthier immune system. So it's all around the health of cities and how do we establish and share and get ahead of healthcare issues for our cities? The second one is around city buildings. We'll be able to sense and respond like living organisms. We live in many cases in large buildings, work in buildings, do other activities inside of large buildings and having a building live more like an entity and be able to respond to the needs of that building all on its own becomes very critical. The third one is that cars and buses will run on empty. We're talking about where there will be no need for the use of non-reusable and renewable energy resources and not requiring them to use the types of energy sources that they use today. The fourth one is that smarter systems will quench cities' thirst for water and save energy. So we seem like we have a lot of water accessible, but it turns out it's not in its usable state. It costs us a lot in energy to be able to transform that water to be usable. And so treating and dealing with these water systems will help cities be much more effective in continuing to allow its constituents to live and grow. And the fifth one is that cities will respond to a crisis even before the emergency phone call. So as we get more and more people in our cities, we have more and more requirements to deal with crisis situations within our cities, and in fact to be able to get ahead of them to the point

where we can predict the crises situation and can start to alleviate that situation before it occurs. So those are the five key elements that we call the next Five in Five. And we're working hard to make each and every one of them a reality for our planet in the next five years.

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Derek Schraner: For more information about smarter cities and the next Five in Five, please visit ibm.com/smartercities.

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Ken Seeley: Well, that's a wrap. I'd like to thank our guests today. From the Performance Institute, Jon Desenberg; from the City of Richmond Police, Stephen Hollifield; and from IBM Business Analytics, Don Campbell. Thanks as well to our segment producers, Kelsey Howarth and Sherry McPhail; and to our head producer, composer and audio engineer, Derek Schraner. Visit us at radiocognos.com. You can also follow us on Twitter at twitter.com/ibmcognos. And check us out at our new community pages at ibm.com/software/analytics/community. I thank you for listening. I'm Ken Seeley. We'll see you in about six weeks.

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