



MIT BDA Module 1 Unit 1 Video 2 Transcript

Speaker key

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HY: Hapyak

AP: The world around us is changing. One of the most important things is we're getting more and more data. Things are beginning to run on data. We have a data-rich society and we're familiar with some of this. For instance we're familiar with traffic and a lot of us have navigation aids on our phones, which are concentrating other people's GPS signals to show us where the traffic's moving quickly or not, and City Planners are beginning to use it to plot, you know, where the bus lights are and how the stop lights work. And in finance, of course, you begin to use this to be able to understand what investments are going well, how the communities are doing and so forth.

But there are much more interesting sort of patterns when you dive down more closely. So, for instance, when you look at credit card records or you look at cell phone data you find that humans have a pattern that's in common with almost all animal species. They have patterns called foraging. You have regular patterns of how you find things like animals will go find the berries to eat and then every once in a while you do something unpredictable which is explore for other things, and people do this all the time. Most of the time we're very very predictable, for instance if you show me data from the beginning of your morning I can predict where you'll be and who you'll be with, with about 95% accuracy, in the evening, but that other 5% is completely unpredictable because you're out collecting new facts, new experiences. It's very unpredictable.

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So, human experience is divided into two things. One is engaging with your environment and exploiting it - it's your habits - and the other is exploration, finding new things to do. And it's a sign of health to have both of them and when people begin to have less exploration or their habits begin to break up that's a sign that they're not doing too well. They're under stress or maybe they're getting sick.

HY: Consider your own habits. Describe a recent example of where you've broken your habits to explore beyond your normal daily routine. What do you think this indicates about your well-being?

Feedback: Thank you for your reflection. Keep watching to hear about different cases where MIT has experimented with this interesting approach to better understand the impact of human behavioral patterns.

AP: Now, what we've done with this is we've used these sorts of patterns to analyze things in many different countries. So, for instance we've been using these sort of basic patterns to analyze poverty, propagation of disease, economic health in various ways in countries like Côte d'Ivoire, in London, in Senegal and in Italy. And in every place we find the patterns are really pretty much the same and



you can use the same sort of techniques of thinking about people in terms of these sort of animal patterns to be able to measure things like how healthy is the community, how wealthy is the community, and this is leading us to lots of new applications.

So, for instance we've been able to map poverty in places that have had no information before. We've been able to plan where the electric grid should be rolled out because we can see patterns of people moving and getting richer. We've been able to do things like figure out how to change the road system and the transportation system to better fit the population and even improve public health by being able to figure out where diseases propagate because of course diseases tend to propagate as people interact with each other.

HY: Which of these applications of big data analysis do you find most interesting?

- a. Poverty mapping
- b. Power supply planning
- c. Transport planning
- d. Predicting spread of disease

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AP: This ability to see the pulse of the society and measure it using these new big data sources has been very exciting for a lot of people. For instance, last year I worked with the UN Secretary General in what he called the UN Data Revolution using these sort of techniques to measure all the sorts of things about society in every country on earth, measuring poverty, inequality, forced migrations, lack of sustainability. So, we're entering a world that's really highly instrumented using this big data where we can cure problems and detect problems very early on using these big data sources. So, that's the positive side of things.

On the other side of things there's privacy and security that we have to worry about, and we'll talk about that later, and of course in between is for-profit business, which is going to be using this to serve customers better.