



Section 6 Guest Lecture

Understanding Risk Using Location-Based Information

Guest: Dr. Avijit Sarkar

Hi, this is Linda Peters of Esri. I would like to welcome today Dr. Sarkar. Dr. Sarkar is the director of the Center for Business GIS and Spatial Analytics, also known as GISAB, at the University of Redlands.

Dr. Sarkar: Thank you, Linda, it's a pleasure to be here today.

Linda: Dr. Sarkar, as the director of the GISAB program, can you tell us, from your perspective, why is it important for a business person to understand the importance of location?

Dr. Sarkar: Well, that's a terrific question. Why location, or why geography in a business classroom? That's a question that University of Redlands Business School students often ask us. And the answer might be simple, sometimes intuitive, but often, business people don't see the importance of location. So anything that a business does today, whether it's trying to understand where its customers live; what are their lifestyle choices or characteristics; where are stores located; where are assets, such as people, facilities, delivery trucks, distribution centers, located; which parts of a network are more susceptible to risk. All these issues have a common thread, and that common thread is location. That's why, first and foremost, it's important for a business person to understand the importance of location. Another reason is ever-increasing location data. Any time, for example, we make a call, send out a Tweet, repost our geotag or photo, we contribute to this big data revolution that we see happening all around us, and a significant component of big data is location. So businesses and business decision



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makers are trying their best to tease out the location component of big data just to be able to make better decisions. So that's again one of the other reasons why.

Linda: That's interesting. There seems an infusion of GIS in spatial analysis happening in business today. Why do think it's happening now?

Dr. Sarkar: You know, yes, that's something that we are seeing happening increasingly, give or take a few, come to think of it. A lot of products that businesses manufacture, or services that businesses actually deliver, are marginally different. So what distinguishes businesses and enables them to gain competitive advantage in relation to their peers are often business processes that help businesses build something more productively or deliver a service more efficiently to their customers. Today, the incorporation of GIS and location analytics enables businesses to make operational, tactical, and often strategic decisions that have a direct impact on productivity, efficiency, and the long-term sustainability of an organization.

Linda: So this week, the students are learning about risk. What is the relevance of geography to risk?

Dr. Sarkar: Well, firstly, that's a very interesting and important topic, that of risk and its management. Let me address this using examples. Not too long ago, an entire neighborhood in a large metropolitan area in the state of California was devastated when underline gas pipelines exploded. Aging infrastructure was one of the central reasons for this terrible disaster, you know, resulting in a life being lost. Several people lost their homes. The utility company was held liable. All in all, it was a terrible mess. Why? Because of faulty risk management of these pipelines. Now if you want to think about it for just a moment, when you consider infrastructure, whether it's aging gas pipelines, broadband or cellular networks, transportation networks, supply chains, the geography or the location aspect stands out as a common theme. So where pipelines are located, what is the age of infrastructure at a given location, when was it last maintained, where are businesses' key suppliers located, are they likely to be impacted by a labor or a civic unrest in the region, how to route emergency vehicles if a certain part of a transportation network is disabled. What happens if a credit card company's



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call center operation is disrupted in a foreign city because of a curfew as a result of a terrorist event? These are all complex, challenging problems that have two things in common: location and risk.

Linda: Yeah, right. So that really leads me to think about: what is the business benefit of using GIS and location analytics?

Dr. Sarkar: You know, that's such a perceptive question. Business benefits of GIS and location analytics: as a result of our research, we have been able to determine can both be tangible as well as intangible. So some of the tangible benefits, as I was alluding to just a moment earlier, can be reduction in annual operating costs, or distribution cost, as a result of reduction in fleet size, number of routes, travel distances; could be improved capacity utilization, load-balancing; could be decrease in overtime, which, again, organizations are not too fond of oftentimes; reduction in time window violations that result in improved customer satisfaction. We oftentimes, in today's day and age, demand products or services delivered to our doorsteps within narrowly defined time windows, and organizations try to adhere to that. Other tangible benefits could be improvement in productivity and efficiency and reduction in lost sales. As one of my school of business colleagues, Dr. Rama Krishna, and I have conducted this research, we have also found evidence of intangible benefits, such as improved staff acceptance of policies, enhanced employee morale, and oftentimes, basic or rudimentary GIS mapping and location analytics, spatial analysis if you may, have been known to facilitate communication of business benefits to stakeholders at different levels of an organization.

Linda: Well, that's great, Dr. Sarkar. I want to thank you. It's always great to hear your perspective.

Dr. Sarkar: Thank you so much, Linda. It's been a privilege to participate in this wonderful Esri initiative.

Linda: Thank you.

Dr. Sarkar: You're welcome.