

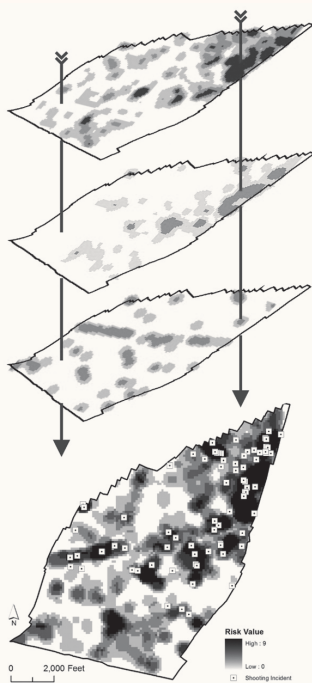
use Big Data to predict both future behavior in individuals and, as we just saw with crime mapping, areas where crime is likely to occur in the future.

As we just highlighted, crime mapping allows law enforcement agencies to estimate where hot spots of crime are occurring, that is, where they have been most likely to occur in the past. Joel Caplan and Leslie Kennedy from the Rutgers School of Criminal Justice have pioneered a new way to forecast crime using Big Data called **Risk-Terrain Modeling (RTM)** (Kennedy, Caplan, & Piza, 2012). Using data from several sources, this modeling predicts the probability of crime occurring in the future using the underlying factors of the environment that are associated with illegal behavior. The important difference between this and regular crime mapping is that it takes into account features of the area that enable criminal behavior.

Risk-Terrain Modeling (RTM) Uses data from several sources to predict the probability of crime occurring in the future using the underlying factors of the environment that are associated with illegal behavior

The process weights these factors, which are the independent variables, and places them into a final model that produces a map of places where criminal behavior is most likely to occur. In this way, the predicted probability of future crime is the dependent variable. This modeling is essentially special risk analysis in a more sophisticated way compared to the early maps of the Chicago school. Kenney and his colleagues (2012) explain:

Exhibit 9.5 Risk Terrain Map



Operationalizing the spatial influence of a crime factor tells a story, so to speak, about how that feature of the landscape affects behaviors and attracts or enables crime occurrence at places to and far away from the feature itself. When certain motivated offenders interact with suitable targets, the risk of crime and victimization conceivably increases. But, when motivated offenders interact with suitable targets at certain places, the risk of criminal victimization is even higher. Similarly, when certain motivated offenders interact with suitable targets at places that are not conducive to crime, the risk of victimization is lowered. (p. 24)

Using data from many sources, RTM statistically computes the probability of particular kinds of criminal behavior occurring in a place. For example, Exhibit 9.5 displays a Risk Terrain Map that was produced for Irvington, New Jersey. From the map, you can see that several variables were included in the model predicting the potential for shootings to occur, including the presence of gangs and drugs along with other infrastructure information such as the location of bars and liquor stores. Why were these some of the factors used? Because previous research and police data indicated that shootings were more likely to occur where gangs, drugs, and these businesses were present. This does not mean that a shooting will occur in the high-risk areas; it only means that it is more likely to occur in these areas compared to other areas. RTM is considered Big Data because it examines multiple datasets that share geographic location as a common denominator.

Source: Obtained from personal correspondence with Leslie Kennedy and Joel Caplan.