RUTGERS Center on Public Security

BRIEF

Risk Terrains as Spatial Intelligence

Joel M. Caplan, Ph.D
Leslie W. Kennedy, Ph.D.
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Risk Reduction vs. Response to Crisis

Police have an important role to play in affecting the risk within an area. They can deter offenders, embolden victims, and harden targets. These actions can have the overall impact of reducing crime occurrence, but we need to separate what we see as risk reduction strategies from prevention and response activities. The risk reduction approach suggests that we choose one or more factors from the risk terrain model to propose strategies that mitigate the factors' impact, interrupt the interactions that lead to crime outcomes, and ultimately reduce overall risk.

Prevention strategies instead operate on the basis of responding to crime occurrence, targeting areas based on what has happened previously as a way of suggesting that if it happened in this location once, it will happen there again. In our tests of risk terrains that forecast on the basis of certain factors have produced results suggesting that contextual models are more accurate in forecasting future crime than are models based solely on previous crime occurrences.

We argue, then, that forecasting must be incorporated into a police strategy that allocates resources (and deploys interventions) in a proactive rather than reactive manner. This might involve the incorporation of the Risk Terrain Modeling (RTM) method or other modeling techniques that incorporate risk terrains into a Compstat process to consider what the high risk areas are based on reasoned analysis of key factors that interact in space and time to form certain types of crime-prone locations.

Forecasting vs. Prediction, Implications for Evaluation

Forecasting is not the same as predicting. Forecasting is more advantageous to public safety practitioners because successful tactical responses to risky areas can be measured with an iterative RTM method, and do not rely on an event to actually occur, or for the event to occur at an exact location. Predictions are deterministic in that an event is assumed to happen unless proper actions are taken; any occurrence of the predicted event connotes a failure of the public safety practitioners who were tasked with prevention, while any absence of the predicted event connotes either an adequate practitioner response or a failed predictive model. Unfortunately, the only true measure of success of a predictive model is for the event to occur, which is generally not in the public's or responsible practitioner's best interest. This is why most public safety responses are measured as failures when hazardous events occur or when crises cannot be properly managed. Prevention activities performed in response to predictions always have the burden of proving that those activities were the direct result of the non-event—while assuming that the event would absolutely have occurred otherwise.

While prediction methods focus on the presence or absence of an event, risk assessments and the RTM method focus on the dynamic conditions (or attributes) of the environment where a hazardous event could occur. The unit of analysis is the geography, not the event. For example, a particular geography's risk of a crime occurring there will be high when conditions at that location are ideal for a crime to occur. The identification of risky areas permits public safety practitioners to intervene and allocate resources to reduce risk at the unit of analysis that they are operationally conditioned for—the geography.

The impact of interventions to reduce risk (and avert negative events) can be evaluated by regularly re-assessing risk, and then measuring changes in risk values among different risk terrain maps at micro or macro levels using basic inferential statistics. For example, when evaluating the impact of a police intervention that was taken in response to an assessed risk, subsequent risk terrain maps might be expected to show certain results, such as an overall reduction in risk values throughout the intervention area; a fragmentation or shift of high-risk hot spots; or, an equalization of risk throughout the study area—with a decreased intensity of high-risk hot spots and a slightly increased or constant intensity of risk at cooler spots. In this way, the risk assessment and the interventions performed by public safety practitioners to reduce risk can be appropriately and mutually exclusively credited with success or failure.