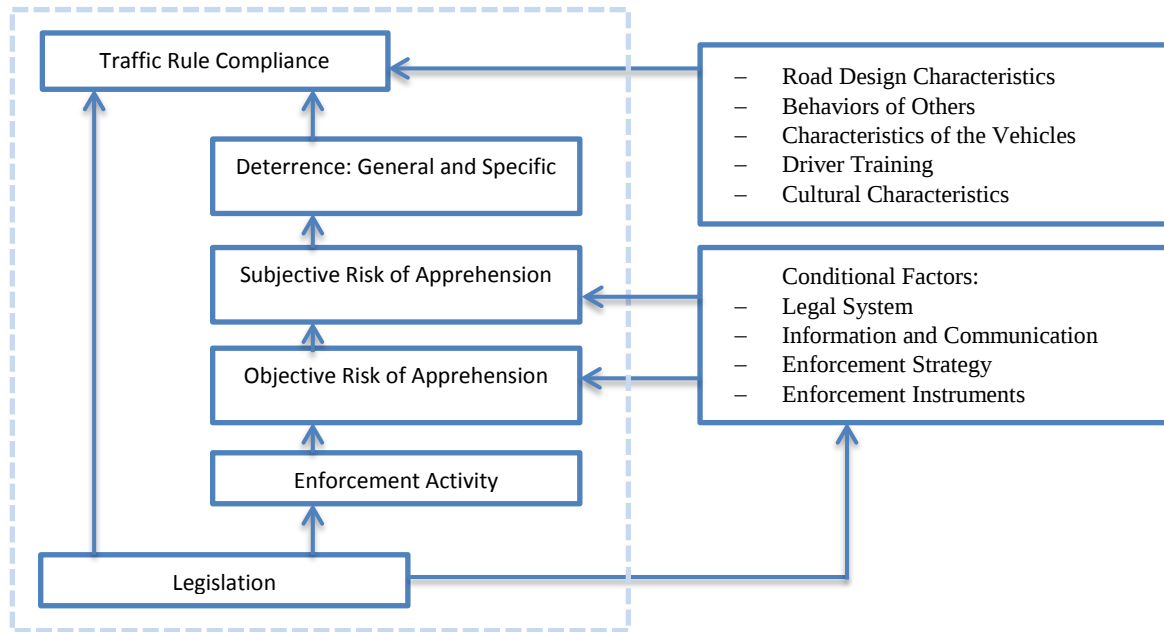


### ***Enforcement Mechanism***

The mechanism of traffic enforcement is put in effect through subjective and objective risk (Zaal, 1994). The objective risk can be increased by following five principles, including improving enforcement publicity and unpredictability, focusing on high risk time periods and locations, using a mix of highly and less visible forms of enforcement, and implementing a long-term enforcement activity (Wegman & Goldenbeld, 2006). The subjective risk results in the general deterrence and consequently increases the effectiveness of traffic enforcement (Zaal, 1994). The increase of subjective risk relies on three basic deterrence principles: certainty (unavoidability of punishment), celerity (immediate punishment), and severity of punishments (Zaal, 1994; Carnis & Blais, 2013) . Therefore, an effective enforcement should create a high possibility of detection and penalty by covering a large area of road network with the constrained resources. Once the violation is captured, the owner of the speeding vehicle should receive a written form notice within a short period after the occurrence of violation. The punishment should match the severity of risk caused by the violator. It is suggested that the amount of penalty should be proportional to the extent of speeding (Carnis & Blais, 2013).

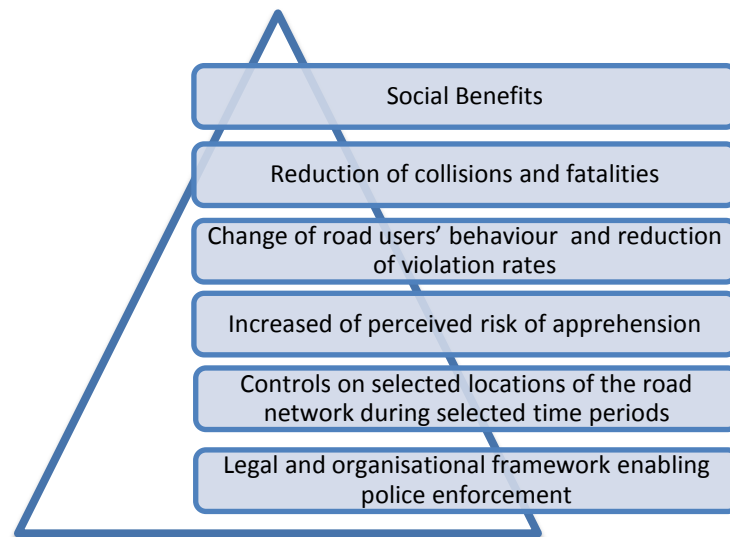


**Figure X: Traffic enforcement mechanism (inside dotted frame), including the influence of external factors (outside dotted frame) (Wegman & Goldenbeld, 2006) (Aarts, Goldenbeld, & Schangen, 2004)**

As shown in Figure X, the traffic enforcement activities result in increases in both of objective and subjective risk of apprehension and hence enhance the general and specific deterrence. The arrow which directly points from “Legislation” to “Traffic Rule Compliance” indicates people who abide by traffic rules voluntarily regardless the implementation of traffic enforcement. The voluntary compliances can be possibly explained by the external factors such as the cultural and road design characteristics.

Another way to visualize this relationship is through examining the hierarchy of road safety enforcement. The legal and organizational framework enabling police enforcement provides the foundation for the actual policing operations. Such a framework will result in well-planned, intensified police controls on selected locations of the road network, which in turn will result in an increase in the perceived risk of apprehension. Consequently, violation rates should decrease

as compliance to traffic laws improve. This will eventually lead to changes in road user behaviour causing a reduction in traffic crashes and casualties as well as a reduction in the social and economic costs leading to societal benefits.



In summary, with high certainty of being caught and high severity of punishment for traffic offences, effective and intensified traffic enforcement increases the objective and subjective risks of apprehension. Speeding and speed-related crashes will be reduced due to the general and specific deterrence, and therefore the road safety will be improved.

There is little doubt that increasing enforcement, or making it more effective, could contribute substantially to reducing the number of road collisions.