

## **DESIGNING HEAVY VEHICLES TO BE SAFER AND MORE PRODUCTIVE USING PBS**

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### **ABSTRACT**

The perception may exist in the transport industry among both operators and legislators that commercial vehicle productivity comes at the expense of safety. This is not strictly true. It is possible for a vehicle to have a substantially larger payload and still be safer than another vehicle. Increases in both safety and productivity are possible by measuring and improving the vehicle rollover tendency and how much road width the vehicle requires. The measures of vehicle rollover tendency and required road width are termed performance based standards (PBS). The PBS approach to heavy vehicle legislation provides a framework to allow vehicles that exceed current legal prescriptive mass and dimension limits access to the road network, under condition that the proposed vehicle's safety is demonstrated either through physical testing or simulations. Such a PBS approach is currently being evaluated in South Africa. This paper summarises the productivity and safety increases of three PBS demonstration vehicles: a pipe-carrying vehicle with a payload increase from 32 000 to 48 000 kg, a mining road train with a payload increase from 105 000 to 122 000 kg and a bi-articulated bus able to carry 137 seated passengers.